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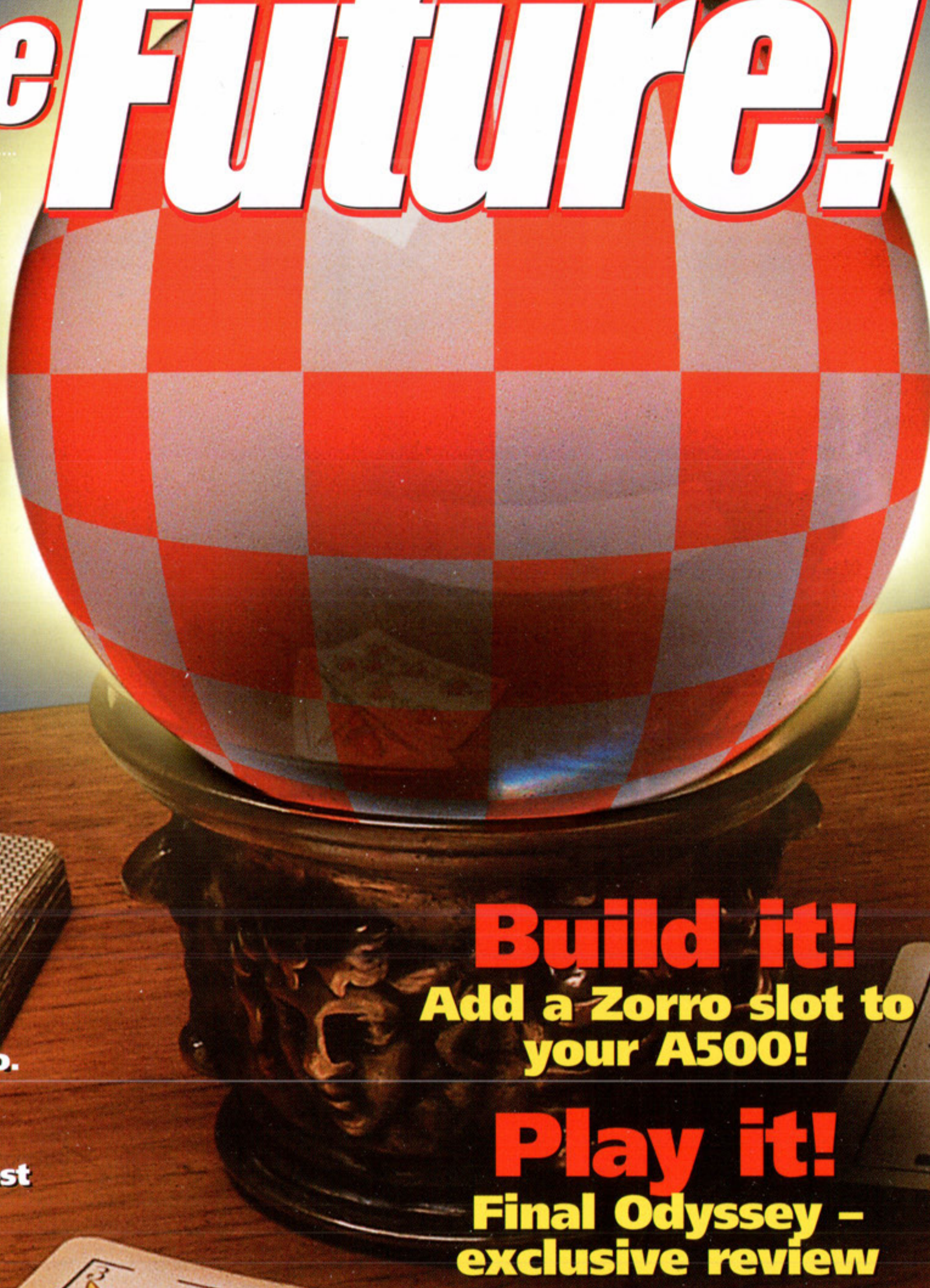
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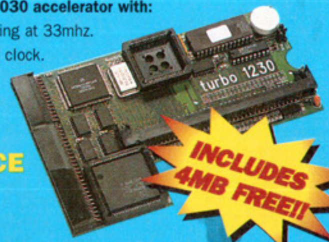
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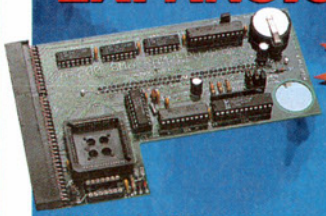



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# Month In View

It's 1998, a brand new year which has started with the news of brand new Amigas. **Nick Veitch** is unusually optimistic…

Maybe you have already heard some of the news from the Cologne show, such is the prevalence of the Internet amongst Amiga owners. But to get a feel for the real news you need to hear it from someone you know and trust, which is just what we have delivered for you this issue.

Unfortunately, as we expected, there was no news of Amiga Inc. actually developing new hardware – this is something they are quite happy to leave to outside licensees.

Thankfully several companies have taken up the challenge, most notably the irrepressible Power Computing who, in conjunction with a German manufacturer, are set to produce what in effect will be one of the first "new" Amigas in five years. The exact specs are a little unsure at the moment, but it is happening, and the reason I say "one of the first" is because several other parties are also planning to release new machines. For the full details of this and the many other companies lining up to make new Amigas, check out the news pages and our special report from the Cologne show on page 14.

Despite all these new things, let's not forget our past. In this spirit we have a special six page feature this month on adding a Zorro slot to the venerable A500. Although it is at least moderately well known that this is possible, and indeed at least two commercial products are available to do just this, to the best of my knowledge nobody has ever shown you how to do it yourself. The best bit is that it isn't going to cost you more than a fiver!

And yet we still found time to review a host of other interesting gadgets, software, hardware and goodies. Happy 1998!



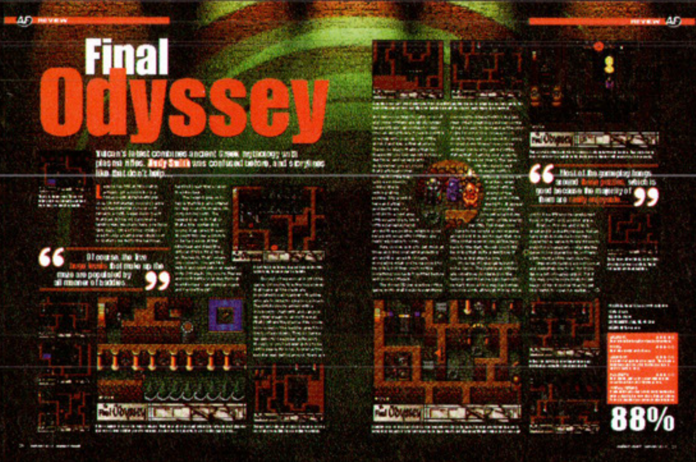
Nick Veitch
Editor




**COLOGNE SHOW REPORT PAGE 14**
In November, the whole Amiga world descends on Cologne for what has always been the best Amiga show. Find out what went on in our mammoth report.




**DIY ZORRO SLOTS PAGE 20**
I'm still not sure what is more amazing – the fact that you can add a Zorro slot to an A500 easily, or the fact that it will cost you less than a fiver!



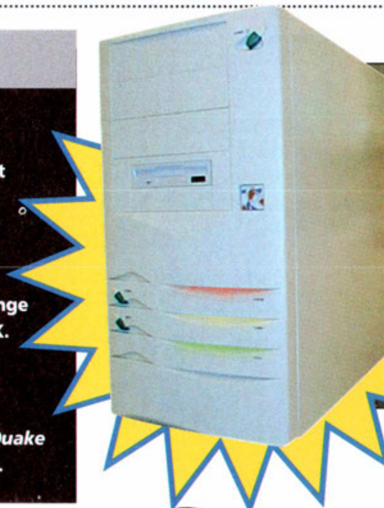

**FINAL ODYSSEY PAGE 36**
Another big release from Vulcan gets the Andy Smith treatment, in a review that also contains scurrilous untruths about his colleagues.




**TV AMAZING PAGE 62**
If you or I were to name this product, we might have chosen a different monicker. You can't get away from the fact that it is amazing, though.

# AMIGA FORMAT Contents

ISSUE 106 JANUARY 1998





A new tower upgrade from Power Computing is just part of their new range of products about to be launched in the UK for the first time.

## NEWS



## REGULARS



## CREATIVE

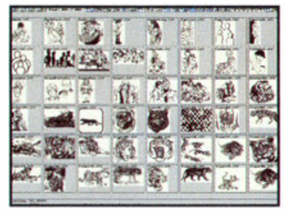


## SERIOUSLY AMIGA













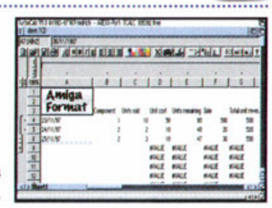
The titchy processor module contains just a smattering of components.





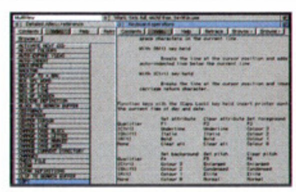
This svelte and paste-sticker adorned box is really a TV tuner in disguise.





Balancing the budget has never been so easy – unless you recently won the lottery, of course.





AMIGA News FORMAT

## WHAT'S UP?



# News from Cologne

Even though we are devoting five pages to the Cologne show later on in the mag this month (just after the news), here's the scoop on all the latest news and details of what went on at the developer conference:

● Following the announcement at MAE we had expected to hear great things at the Cologne conference. Amiga Inc. had stated that all would be revealed there, but in the end there just wasn't that much news, thanks in part to the fact that Jeff Schindler's budget still hasn't been approved by the money men at Gateway. However, as stated in the Cologne report, there were encouraging noises made about just how much money Amiga Inc. would get once the budget had been resolved – millions for worldwide marketing was definitely mentioned and Petro Tyschtschenko referred to Gateway as "our bank".

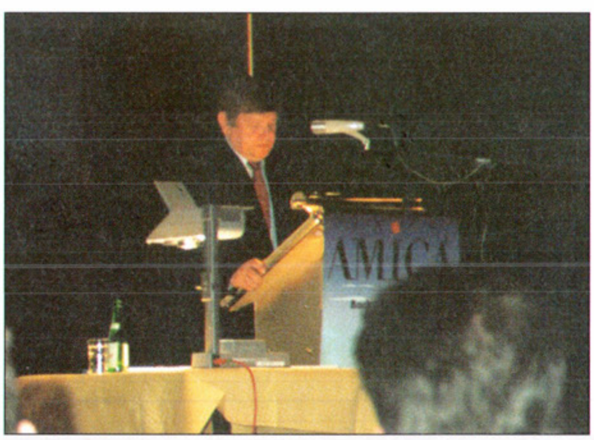
● The most important news at the conference was the same as it has been since Gateway announced that they'd bought the Amiga, namely that licensing would be the main route to new Amigas appearing on the shelves and that Amiga Inc. would be more of a technology company pushing the Amiga back to the forefront of cutting edge technical development. Most people *Amiga Format* has spoken to since the show (and the show report) have indicated that this is the best way for Amiga Inc to operate. For the moment, at least, Amiga Inc. intend to remain focused purely on the research and development aspects.

GATEWAY2000
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Gateway reiterated that licensing would be the key to releasing new Amigas.

> "...there were encouraging noises made about just how much money Amiga Inc. would get..."

● Overseas distribution of current stock was a big topic during Petro Tyschtschenko's portion of the speech, with reference made to new Malaysian and Indian distributors. The problems with regard to the RightTiming Corporation over the WonderTV A6000 are, we are assured, being resolved.




Eager Amiga developers awaited Petro's announcement of the future of the Amiga with baited breath.

● Jeff Schindler appeared nervous for his first really big confrontation with the Amiga horde and proceeded to go through various aspects of the Amiga's architecture, noting along the way that the Amiga and, more specifically, Workbench are really scalable – suitable for both very low end machines such as palmtops and consoles, all the way up to high end machines like graphics workstations and servers.

His plans for new Amiga features were all a bit hazy, which is not unsurprising since Amiga Inc.'s budget remains to be set so there are still no engineering staff. However, in his speech and in private conversations he seemed to be genuinely interested and optimistic about the Amiga's future.



"... yes, and you can use a jojoba conditioner...", Ben and Jeff Schindler compare haircare products.

● Questions from the floor were, as usual, mostly negative – why can't you do this, what about that and so on, but this is to be expected, especially since Amiga Inc. have spent the last seven months keeping quiet. Nobody raised

# Power Computing Latest...

This month has been a very busy time for Power Computing. Not only were they at the Cologne show demonstrating their new Amiga 5000 machine with DCE, its inventors, they also talked up a storm with the many developers in Germany and around Europe that attended the show which has lead to them introducing a whole new range of products to the UK previously unavailable here.

First up is the new Power Tower. This tower case offers the easiest fitting of a bare A1200 motherboard of any of the third party tower systems, and unlike the Micronik, is an all-steel construction (the front's still plastic of course), which means that it's very sturdy.

The Power Tower is wider than your normal tower, giving it an impression of real power since it looks more like a server case than a standard desktop PC. It offers three 5.25" bays, two 3.5" bays accessible from the front of the tower (including one with a floppy drive front plate so you can transplant your A1200's floppy without it looking ugly) and two more in a bay below them which aren't open to access outside the machine.

The case is supplied with easy instructions and comes with a keyboard adaptor and PC keyboard and even the wiring to be able to make use of the reset button on the front of the case (soldering will be required for this). You even get stickers for the back of the machine so you don't need to remember which port does what.

**Case alone:** **£149.95**

**Basic pack:**
**Power Tower with: A1200 motherboard and floppy, Workbench 3.1 with floppies and manuals, Amiga Technologies Magic Pack bundle ...£359.95**

**Pro Pack:**
**Power Tower with: A1200 motherboard and floppy, Workbench 3.1 with floppies and manuals, Amiga Technologies Magic Pack bundle, four way buffered IDE adaptor and full IDEFix 97, 24x IDE CD-ROM drive, 1.7Gb IDE hard drive, 1230IV Blizzard with 16Mb SIMM ...£729.95**

Next up is Power's new external scandoubler. Suitable for any Amiga with any VGA monitor, this little box will ensure that you never need worry about what sort of monitor to get in the future.

Unlike the Grand TV Amazing box we've reviewed this month, the Power scandoubler is designed to take your video output rather than composite so you should get a very good picture. Power will be stocking this scandoubler by the time you read this news piece, for just £79.95.

**"Phwoar, look at my board!" says Tony Ianiri of Power Computing.**






**This monster box is the new Power tower, coming your way real soon (review next month).**

Lastly, Power have been inundated with requests for cheap CD-ROM drives and came up trumps at the Cologne show with a 1000 slimline 2x SCSI CD-ROM drive bundles, including a Squirrel SCSI interface and *Oscar*, *Diggers* and *Chaos Engine* for just £79.95! You'll have to hurry to get your hands on one of these drives since they're bound to sell out quickly.

For further details on any of the products mentioned here give Power Computing a call on 011234 851500, or visit their website at www.powerc.com.

> *...there was an underlying confidence that the Amiga could be pushed back into computing's limelight...*

the question of Gateway's large losses for this quarter and how it would affect Amiga Inc. Later Jeff Schindler explained that it should not affect Amiga Inc in the slightest and that a proportion of the losses were based upon the fact that Gateway's capital expenditure for Amiga Inc and ALR Research was high.

● 1998 was unofficially announced as the Amiga year of co-operation with several (mainly German) developers committing themselves to sharing data and ideas about development including APIs and technical specifications for products, and on more than one occasion *Amiga Format* saw two or more developers in a huddle discussing new plans for 1998.

● So, in summation then, some people came away from Cologne disappointed that there was no new Amiga announced, no five year plan discussed and no talk about where to go next either in terms of what processor to use, the VGA/custom chipset argument or any of the other perceived problems the Amiga faces. However, what was there was an underlying confidence that the Amiga could be pushed back into computing's limelight very soon.



**A rapt audience listens while Michael Battilana of Cloanto describes Amiga Forever in great detail.**

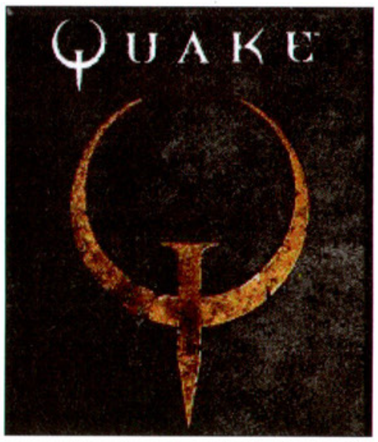
## Top ten reasons...
### ...to go to Cologne '98

1. It's the best Amiga show in the world!
2. You should be able to buy Workbench 3.5 there.
3. You'll see lots of pretty women dressed up as game characters.
4. You'll be able to meet programmers and talk to Amiga luminaries from all over the world.
5. The beer's very good.
6. So's the food.
7. It's not even that expensive.
8. You'll be able to play with all sorts of new programs and hardware without having to buy them first.
9. You don't have to speak German.
10. It really is the best Amiga show in the world!



# To Quake or not to Quake?

Amiga Flame (http://www.amigaflame.co.uk) have had a statement from clickBOOM with regard to their putative port of iD's *Quake* to the Amiga. Since it was first announced that a group of sceners had managed to port the game engine to the Amiga, rumours have been flying around that a full, commercial version would or would not appear soon. At the Cologne show this year, both *Quake* and *Duke Nuke'Em* were seen on Amiga screens, prompting a whole new flurry of rumours. I'll let clickBOOM take up the tale (right).




We hope that a favourable decision will have been made by iD by the time you read this. Of course, if you want to camp out on clickBOOM's website until the news is printed there, you'll have to go to http://www.clkboom.com.

**Monday 1st December**

**The Amiga Quake rumour has got completely out of hand. Since the Computer '97 show in Cologne some ten days ago, we have received well over a thousand email letters and numerous telephone calls. They all had the same question: "Is it true that clickBOOM will be releasing *Quake* for the Amiga?"**

**We had quite a few inquires of this nature even before Computer '97, but we basically decided not to address any of them. At the show, however, the word spread quickly among Amiga enthusiasts, and the electronic siege on clickBOOM started. We hoped it would end shortly after. It didn't. On the contrary, the word had spread even faster over the Internet.**

**We would like to take this opportunity to apologise to all users who wrote to us (some even five times) and never got an answer.**

**"So, what is the answer?" you are asking.**

**We do not have a definite answer yet. However, it is true that we are in talks with Id Software to legalise this unbelievable action game for the Amiga. The news will be posted to our site as soon as everything is finalised (positive or negative).**

**The reason we are posting this "news" is because we could not ignore your letters any more. While we have the obligation to answer, as you can see, the final answer is still not here. Therefore, we would kindly ask you not to barrage us with emails until the final news. We cannot cope with such a huge amount of letters, especially when we do not have the real answer.**

**We hope to have more for you very soon.**

**Best regards,**

**clickBOOM**

# PPC goes NOVA!

**Nova Sector design may be a name unfamiliar to European Amiga owners, but this Michigan-based company is hoping to become a household name with a new series of Amigas designed around the PowerPC. Their machines are all based around an A4000T equipped with PowerPC card and graphics board and are all set up to work from the box. They have several different standard systems called the Alpha, the Bravo and the Nitro which is designed for non-linear editing.**

**Most of Nova Sector's machines are geared towards the American video market, some coming with pre-installed *Lightwave*, but all are fast, memory and hard drive-rich machines designed for power-users. If you want more details on any of these machines, you can visit Nova Sector's website at http://www.pantheonsys.com/nova/ or telephone them in the United States on the following telephone number: 001 616 831 0765.**




**Will Nova Sector become a household name for Amiga owners?**

## WIN AN AMIGA!

*Amiga Informer*, America's latest Amiga mag has a game going on its website called *Amiga University*.

It's a general Amiga knowledge quiz and prizes are on offer from a variety of companies including Softlogik, Nova Design and even Amiga Inc.

If you think you've got enough Amiga know-how to win some of these prizes, why not take a trip to their website at http://www.amigainformer.com and enrol with them now!

## SCANNING SERVICE

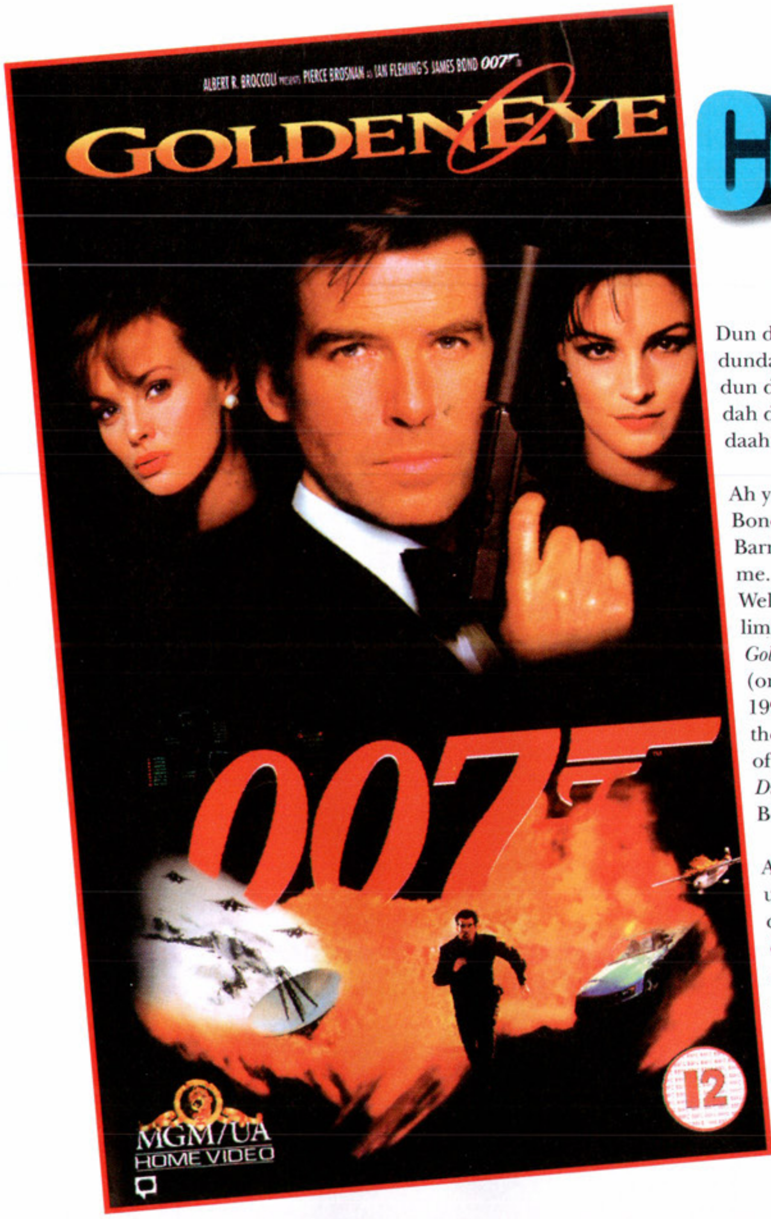
X developments can now offer a Scanning service to all Acorn, Amiga, Macintosh, PC, and any other computer users (check if you have an unusual computer), and even perform minor alterations such as Antique effects or Red-eye removal.

Prices vary but start from as little as just £3.50 for a disk's worth of scans (how many you get will depend on resolution and size of the pictures but bear in mind that if your computer does not have much RAM, you may not be able to view Hi-Res pictures). For more details, just ring X developments on: 01978 264929

## QUICK HINT

If you haven't tried out AFCDPrefs on our CD yet and you're still copying files to RAM: to change their tooltypes, why not give it a go?

It allows you to choose what viewers you want to use for pretty much all file types we have on the CD. It's ideal for parnetted machines or graphics card owners and it can even be of use to standard A1200 owners.




# AF Competition!

Dun dundla dun dun dunda, dun dundla dun dun dunda – daah dah de daah de dah daah!

Ah yes, the James Bond theme by John Barry as ruined by me. And for what? Well, to celebrate the limited release of *Goldeneye* on video (only until April 1998 punters) and the cinema release of *Tomorrow Never Dies*, the latest Bond epic.

Also, it celebrates us having ten copies of *Goldeneye* to give away to the first readers who can answer the following simple question:







**Send your answers on a postcard with your name and address to our usual competition address:**

**Bond competition**
***Amiga Format***
**29 Monmouth Street**
**Bath BA1 2BW**

**As usual, no employees of Danjaq Enterprises, MGM Video, Future Publishing or MI-6 can take part in this competition and our editor has the final decision as to who wins and who dies.**
**The closing date for this compo is: 1st March 1998**

## "Who played James Bond's first real enemy?"

# Net Corner

### MIRROR, MIRROR ON THE WALL

http://www.ukonline.co.uk

UKOnline, the new champions of Amiga Internet use, are fulfiling their promise to keep expanding their Amiga-related services. On their front page they already have an Amiga button to join the PC, Mac and Psion (!?) buttons and their web mirroring service is going great guns. Already on board are the following sites:

**VAPORWARE:** This is a partial mirror at the moment, offering FTP downloads of all the Vaporware products from AmFTP to Voyager. There's not even an ordering button for registering them. Hopefully, in the near future this will become a full mirror since it's much faster than using the other Vaporware mirrors (for the UK anyway).

**CUCUG:** CUCUG plays host, most importantly, to the Amiga Web Directory, perhaps the most valuable online resource for new Amiga info. It has all the pages from that site including the invaluable search page and, again, should be much faster to access than the US host site for UK readers.

**AMIGA.ORG:** Amiga.org is a bit of a newcomer to the website scene, but it's rapidly proving itself as another top notch "daily visit" site for Amiga info. The UKOnline site mirrors all the main content for the site, but doesn't include things like the Amiga Developer Network site or Team Amiga which Amiga.org host on their home site.

UKOnline don't intend to stop their Amiga support there. They already have 24-hour technical support available and hope to offer a full Aminet mirror sometime in the New Year. You can also get to these mirrors directly through the following addresses:

http://vapor.ukonline.co.uk
http://cucug.ukonline.co.uk
http://amigaorg.ukonline.co.uk






# Cologne Show Computer

Wilkommen zu Köln! Even if you don't speak a word of German, it won't be a handicap. **Ben Vost** explains why…

Even though this is my eighth trip to Cologne for the Amiga Show, I never fail to get excited at the prospect of visiting what is certainly the best exhibition in the world. Nothing else comes close. Not the American shows, not the Australian and certainly not the ones we go to in Hammersmith once a year.

It's not even all that expensive. OK, you have to pay for a flight out (about £99 plus tax from Heathrow), but hotel rooms can be had for as little as £20 a night (hostels are cheaper), and because the Deutschmark is doing so poorly against the Pound, your other costs and the prices at the show will all raise a smile.

Obviously it's too late for you to get to this show, but if the Mark remains as weak as it is now (some people are predicting it will because of an influx of immigrant labour from Italy, which now has open borders with Germany), then you should really save up your pennies for next year's show. The language barrier shouldn't prove too much of a problem, with most of the exhibitors having at least one very good English speaker on their team, but you may want to bring a phrasebook for recalcitrant hotel owners who seem to master only the very basics of English – "Visa, Mastercard, Diners, ja". Just get there and it'll be worth your while. This is why.

> "… it was generally agreed that the Internet is the main reason the Amiga community is still so vibrant today…"



Let's start with the non-essentials. Cologne is a gorgeous town, home to "eau de Cologne" (no, really?), a fragrance you can still buy at the Home of Cologne, 4711. It's not a nice fragrance for those who have grown up with Chanel or Yves Saint Laurent, but your granny will love it, and it's cheap!

Next, and most imposing, is the Cologne Dom (cathedral). This is a fantastic structure which was started in 1200AD and wasn't finished until 1850. Even more amazingly, although Cologne was bombed to bits in the second World War, the Dom didn't take a single hit.

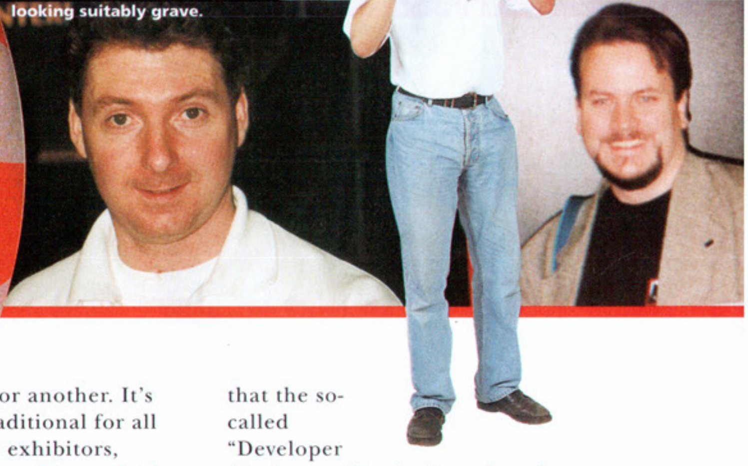
The last thing I want to talk about in relation to the parts of Cologne outside the show are the Brauhauses. These beer halls all sell their own brews in 20cl glasses – a perfect measurement in this beer drinker's opinion, since the beer stays fresh, cold and keeps it head until you've drained it and called

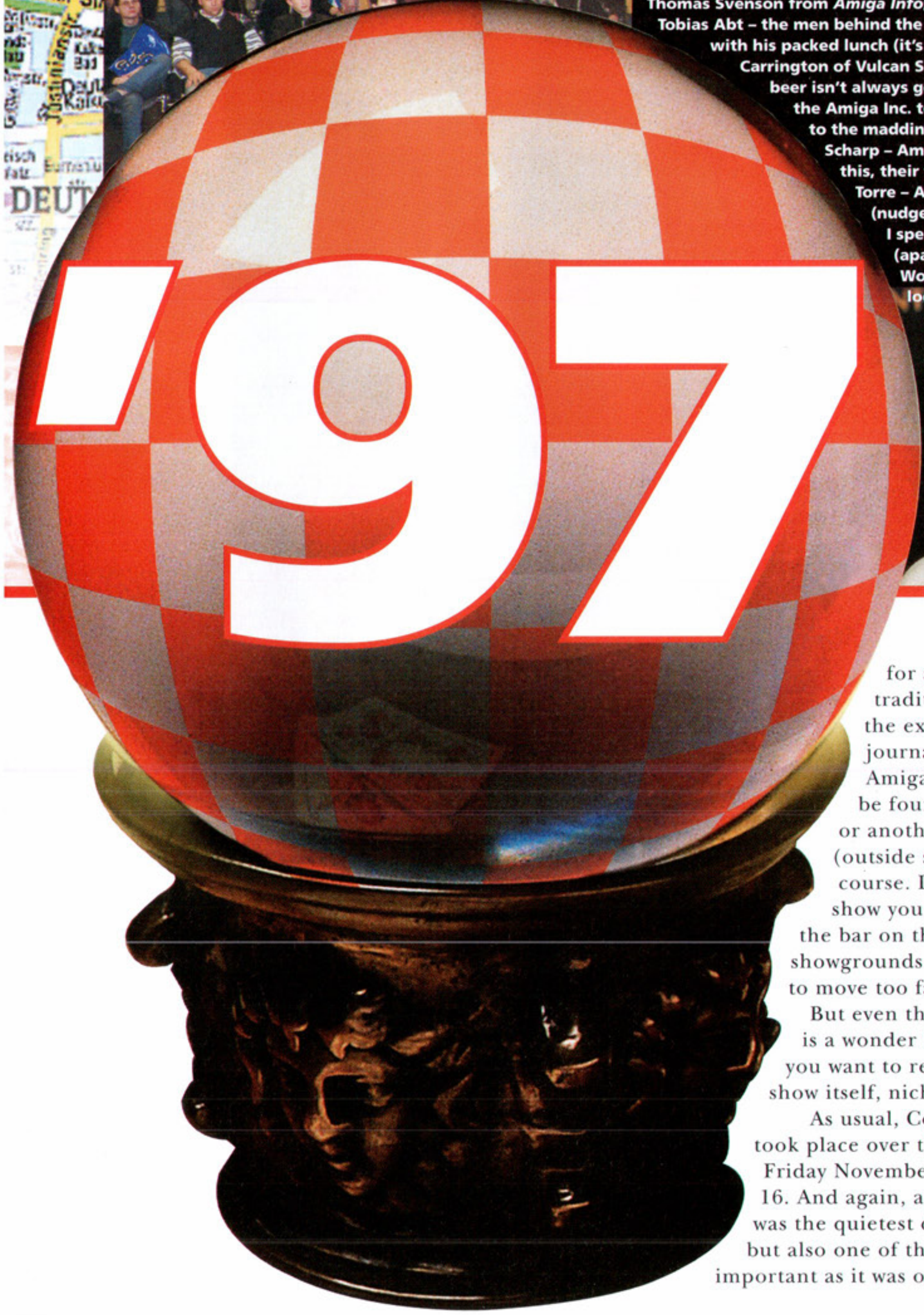




**Horizontally left to right:** The AmigaSOC team and a very seriously Swedish Amiga journalist – no, seriously, it's Thomas Svenson from *Amiga Info*; Hubert Neumeier and Tobias Abt – the men behind the PicassoIV; Alan Redhouse with his packed lunch (it's actually a CD32); Paul Carrington of Vulcan Software is proof that lots of beer isn't always good for you; "Eyes right!", the Amiga Inc. team snap to attention; Near to the madding crowds; Mr & Mrs Bob Scharp – Amazing's correspondents for this, their first trip to Cologne; Joe Torre – Amiga user and CD-ROM fan (nudge, nudge, wink, wink); what I spent most of the show doing (apart from drinking); Kermit Woodall of Nova Design looking suitably grave.








for another. It's traditional for all the exhibitors, journalists and other Amiga luminaries to be found at one place or another all weekend (outside show hours of course. During the show you can find us at the bar on the showgrounds – we don't like to move too far).

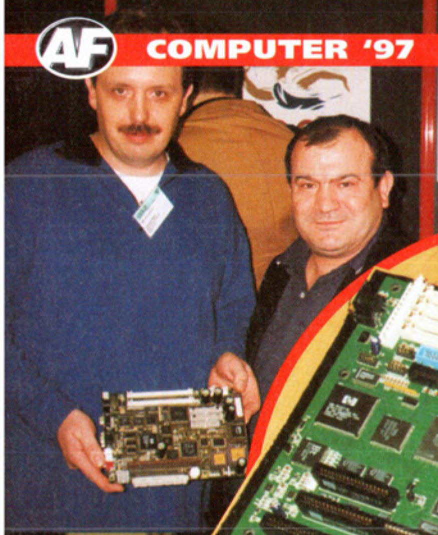
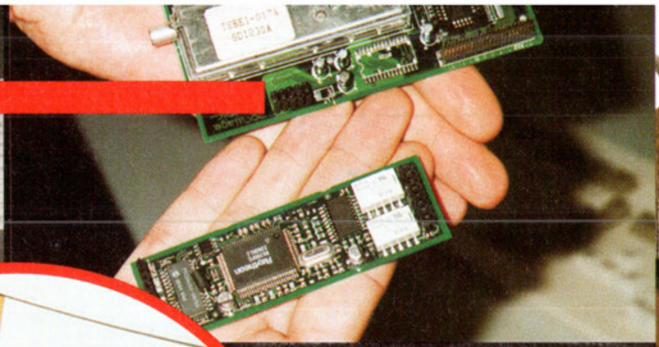
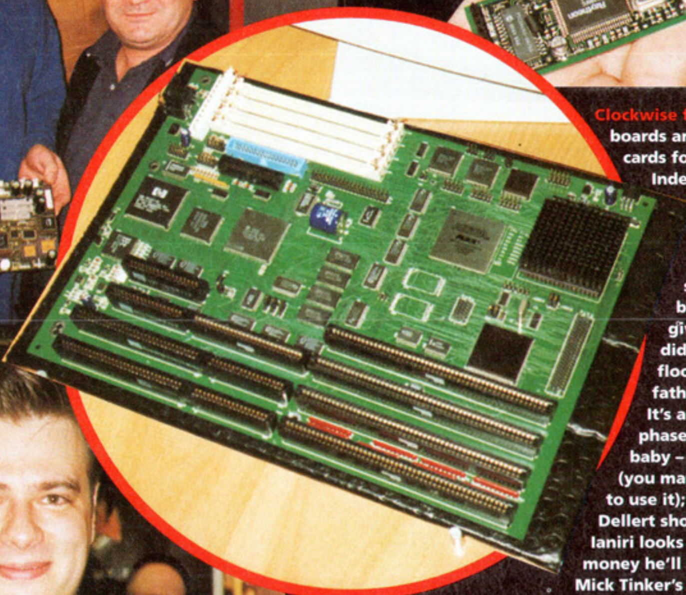
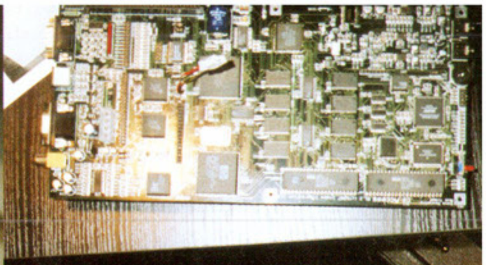
But even though Cologne is a wonder to behold, what you want to read about is the show itself, nicht wahr?

As usual, Computer '97 took place over three days, Friday November 14, to Sunday 16. And again, as usual, Friday was the quietest day of the show, but also one of the most important as it was on Friday night that the so-called "Developer Conference" took place. I say "so-called" because it was really for anyone who works in the Amiga industry and is an interested party.

I have little to offer a developer conference apart from kooky ideas, but this really wasn't a conference for programmers or hardware gurus. In it, Jeff Schindler explained at length about where the Amiga had been and where it was going, only, as you might have expected, his crystal ball was somewhat cloudy.

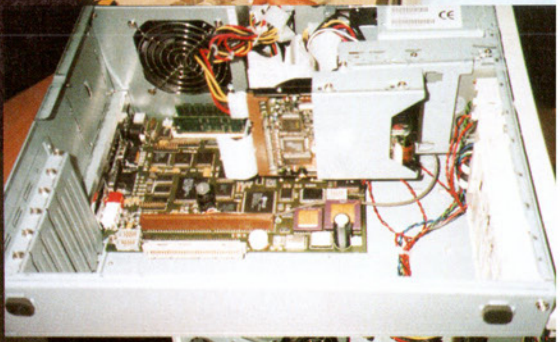
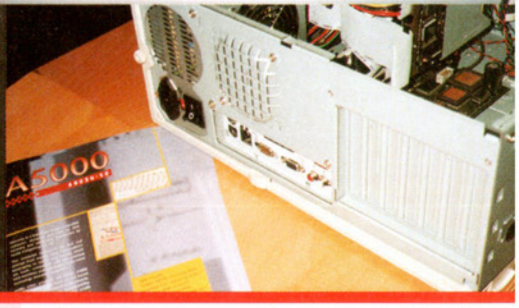
We were able to gather a few salient facts from his speech. The first is that by the time you read this show report, Amiga Inc.'s first budget should have been approved

**Continued overleaf ➡**






**Clockwise from centre top:** These tiny boards are the new Pablo and Paloma cards for the Picasso IV; Mick Tinker's Index board; Eyetech's CD³² in a box – a complete AV setup in a briefcase; *Duke Nuke'Em* being played on an Amiga at the show; inside an A5000; the same machine with a glossy brochure – 10,000 of these were given away at the show and I didn't see a single one on the floor; Bless us, in the name of the father, the son and the holy moley! It's a new Amiga!; Wold Dietrich of phase 5 proudly clutching his newest baby – the Blizzard PPC for the A1200 (you may need your machine in a tower to use it); Brains and brawn – Thomas Dellert shows off his creation while Tony Ianiri looks pleased at the amount of money he'll make from it. **Inset:** Mick Tinker's Boxer motherboard – another new Amiga! This one has Zorro III slots built-in, an '040 as standard and provision for a direct PPC connection. Good times are ahead!

by the men holding the purse strings. This is the biggest and best bit of news, as a company can really start to get things going once it has a budget sorted out.

The second was that there was no announcement of an Amiga to be launched for the Christmas market next year with megapixel 24-bit colour, or 128 channel, 16-bit sound. Amiga Inc. are more interested in developing these technologies and then letting someone else get their hands dirty actually putting them into practice.

This is a Good Thing™ because it means that Amiga Inc. won't have to pay for factory facilities, warehousing, shipping, components and all the other bits and bobs that Commodore, being a computer manufacturer, had to deal with.

Instead, Amiga Inc. want to spend all their money on people inventing new and exciting things to put the Amiga back at the forefront of cutting edge technology. And when I say all their money, I don't really mean 100 per cent, because Jeff Schindler was quite happy to tell us all that there would also be a budget for marketing running into "millions of dollars". Sounds good huh? Y'ain't seen nuthin' yet.

I have the strong feeling that 1998 is going to be the year of co-operation for the Amiga, notwithstanding the Warp Up/Power Up squabble, because many of the people I spoke to at the show said that they were engaged in projects with other companies. Village Tronic have decided to release the whole Picasso96 API to open out the RTG market, so that people can write their own funky stuff for the king of graphics cards. This means that teletext decoders for the Paloma (the Picasso IV's new TV tuner add-on) cannot be far from happening.

Everywhere I turned at the show there were people greeting each other who'd only previously met via email. It was generally agreed that the Internet is the main reason the Amiga community is still so vibrant today, more than you might expect from nearly four years without a home and more than five since the last new machine.

As Cologne shows go this one wasn't as exciting as in years gone by, but there were still some stunning new things to be seen. Let's start with the new Amigas. There was one completely new




Just some of the stuff I was weighted down with at the show.




**Clockwise from top left:** Conferences and crowds – Petro Tyschtschenko speaks, Kermit speaks and Jeff Schindler speaks at great length; James Ceraldi of AuroraWorks showing off *H-Bomb* – a great *Bomberman* game you can even play over the Internet (you'll still need an Amiga with a graphics card to play it though); Turkish TV covering the show for a satellite channel (you may have seen it?), there were two other camera crews interviewing various Amiga luminaries and covering the show for German TV; phase 5's talks about the PPC were always well attended throughout the weekend; "Excuse me, I have a question!"– Ben sticks his oar in; Make room! make room! The Schatztruhe stand was never empty for a minute; Poor old Michael from Cloanto – he was trying to talk about his Amiga Forever project at one of the seminars and people were cheering whenever he mentioned the word 'Amiga' and booing and throwing things whenever he mentioned the PC. In the end it all turned out OK – the shouters left after about half an hour and Michael settled down to give a two-hour discourse on the benefits of trying to emulate your Amiga on a PC. However, he did point out that you would need a Pentium Pro 300 to be able to get the speed you'd expect from an 25MHz 68030-powered Amiga; the queue of people lined up to speak to Jon Potter, author of Directory Opus, or possibly to get his autograph on their manual, disk or, in one case, hand.

**Inset:** It was no wonder Petro looked so happy! The show was a great success and he hopes to change the name to World of Amiga next year.



machine on display and working on the Amiga International booth, courtesy of DCE and Power Computing. The A5000, as it is known, is a 50MHz '030-based machine, but it seems that its spec may well change to an '040 if certain plans go ahead.

Now that the development back has been broken, so to speak, you will be able to expect Amigas in all sorts of shapes and sizes from this excellent partnership, including the possibility of a purpose-built laptop machine.

There was another new Amiga on the AII stand in the shape of the Boxer from Index Information and Blittersoft. This board comes as standard with an '040 (the motherboard has been designed so that the '060 is a simple chip replacement upgrade), but wasn't working at the show since it had literally been finished two days before and some of the components weren't available.

> "... you will be able to expect Amigas in all sorts of shapes and sizes from this excellent partnership..."

The phase 5 stand was extremely busy all weekend with seminars explaining the benefits of the PowerPC and the PowerUp program. Hundreds of people gathered to see the Blizzard PPC for the A1200, a gorgeous board that has been CE tested for use in a tower but isn't guaranteed to work in a standard A1200 (but Wolf Dietrich was fairly sure it would), and the CyberVisionPPC graphics card. Well, actually, that wasn't on display, but phase 5 did have a Mac on their stand armed with a Permedia 2 graphics card, so they were running a game using that to demonstrate how powerful the Amiga equivalent would be.

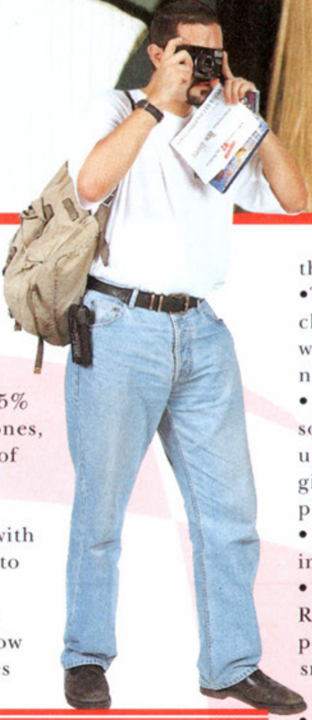
Haage and Partner had their usual enormous stand at the show, displaying all their wares including *Art Effect 2.5*, Storm C and some of the English products they sell in Germany, like the superb *DrawStudio*. I also had the chance to speak with Jeroen Vermeulen, the author of Haage and Partner's forthcoming Merapi Java project for the Amiga. He said that he hoped to complete this full Java compiler (JIT and true) in the very near future.

Of course, Haage and Partner, phase 5 and Amiga International,

**Continued overleaf ➡**



**Clockwise from top left:** Thomas Tavoly left his Amiga calculating keys for the RC564 effort; Vas Shah from Gasteiner showing off his new footballer-style haircut (it's not very nice, that's why we covered it up with the bar!); Jens Schoenfeld – Catweasel creator and slightly sad Trekkie; Paul leSurf, Blittersoft boss and Nicholas Witchell lookalike; Nicole Gottfried – Amiga International's glamour girl!; Dave Link from HiSoft came on a flying visit with his girlfriend; Mick Tinker looking tired after three days of explaining that the motherboard he was talking about really was a new Amiga; the MicroniK stand did a roaring trade all weekend with people buying bits for their tower-based 1200s. Lisa Tullah of Vulcan Software – the voice of *Uropa 2*; Author of Miami, Holger Kruse, asks Markus Nerding from Haage & Partner to please not hit him again; yet more people! In total the Computer '97 show had more than 30,000 visitors! **Inset:** Keep 'em coming! The crowds at this show ate more than 40,000 sausages, drank more than 33,000 beers and 47,500 Cokes. In between all that lot, they found the time to buy umpteen upgrades, add-ons and new software titles for their Amigas.



Inc. weren't the only Amiga companies displaying their wares at the show, but were just three of nearly forty stands devoted to the Amiga.

In total, while only about 65% of stands were Amiga specific ones, I would say that probably 85% of the visitors were Amigans. An example of this would be the paucity of people walking out with PCs compared to those willing to part with money for A1200s.

Cologne is always the place where European companies show off new projects, including ones that aren't quite finished yet, like:

- Titan Computer's excellent Goo clone called Elastic Dreams which was manipulating pixels like nobody's business on a PowerPC;
- ACT Albrecht's Prelude soundcard, now in a slightly updated version with new tools to give the Amiga 16-bit sampling and playback capabilities;
- Eagle's complete Linux implementation for the Amiga;
- Oberland's latest version of Reflections (still not in English, perhaps by summer 98), with a smashing demo by Tobias Richter running constantly on the stand;
- Irseesoft showing off *TurboPrint 6* with the best-looking printouts I have ever seen;
- Schatztruhe doing a roaring trade in their newly released *CygnusEd 4* (reviewed page 66) and *Turbocalc 5* (reviewed page 64).

> "...while only about 65% of stands were Amiga ones, I would say that probably 85% of the visitors were Amigans."

There were lots more great products that were on sale or being demonstrated at the show. Suffice it to say that Computer '97 was a great show for all things Amiga.

Amiga International hopes to increase the size of the show for next year and rename it to World of Amiga '98. I'll leave the last word to a very happy Petro Tyschtschenko:

"I am so pleased to see so many Amiga fans here this year.

We are so pleased that it has gone so well. This has been the best show for me ever!" AF



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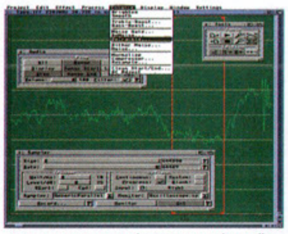
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No, your eyes are not deceiving you—that really is an Amiga Style Guide compliant user interface!

***The total sampling solution for your Amiga!***

The truly amazing Soundprobe sampling software is compatible with many different brands of 8-bit and 16-bit samplers, including Aura-16, Clarity-16, Megalosound, DSS8+ and Technosound Turbo 1 & 2. Soundprobe will output in up to 12-bit resolution through your Amiga, or in up to 16-bit resolution through sampler hardware like Aura-16. Either way, you can always expect high quality results when recording back to tape. Dozens of processing and professional sound enhancement functions are built in, and more can be added easily as plug-in modules. Why settle for less, move on up to Soundprobe today!

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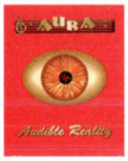


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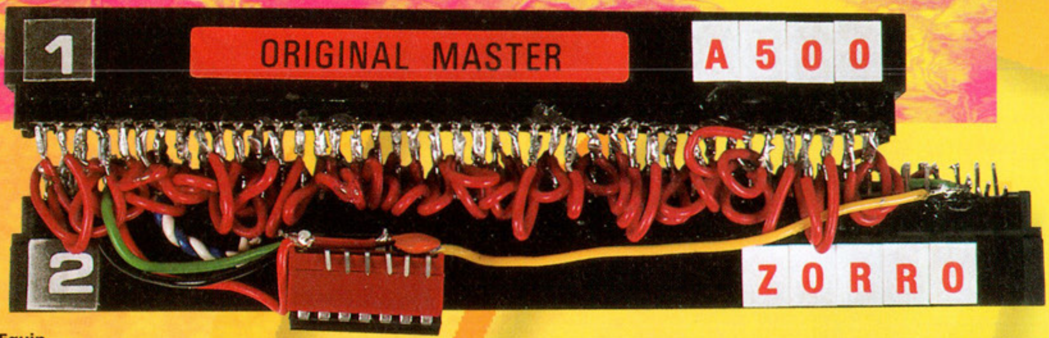
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# Zorro Slots

**Simon N Goodwin** explains Amiga hardware expansion slots and adds a bargain Zorro slot to any Amiga 500 or A1000!




Equip your A500 with a Zorro slot! For under a fiver, you could make yourself a sleek and sexy expansion slot like the one shown here.

Zorro is the Amiga's expansion bus, similar to ISA on PC clones or Apple's NuBus. It's named after the second Amiga prototype and derived from the Amiga 1000 expansion connector. Zorro slots are standard on 'big box' A2000, A3000 and A4000 Amigas and they can be added to the more 'mass market' Amigas like the A500 and A1200.

Hundreds of different Zorro boards are available new or second-hand. These include memory expansions, graphics and sound boards, network adaptors, fast-drive controllers, co-processors and interfaces of all kinds. The range and compatibility of Zorro cards are the Amiga's strengths, bolstered by a clearly-defined, public, standard. And it's a standard which your old A500 can interface to with relative ease.

> "Zorro is a sophisticated bus which allows lots of cards with a mix of speeds and capabilities to co-exist."

Zorro is a sophisticated bus which allows lots of cards with a mix of speeds and capabilities to co-exist. Boards are automatically configured to share resources, with no need to fiddle with 'jumper' connectors to stop them competing for signals, which is the bane of PC users. Zorro cards can be 'bus masters', taking total control for top performance, or slaves, sending 'interrupts' when they need attention.

The only machines that lack the potential for Zorro expansion are the CDTV, A600 and CD$^{32}$. These could be extended to support Zorro because the software and basic signals are all available internally. However, it's not an easy job as these systems were designed as sealed, one-piece units. Later, we'll show how A1000 and A500 computers can gain Zorro compatibility.

If you're serious about expanding your Amiga, the big box models are designed for the job, with extra power and signal buffering and slots just waiting for you to plug something into them. But if all you have is an old A1000 or A500 you can still access the majority of Zorro cards with a fairly simple 'hardware hack'.

If you don't know how to solder then your options are limited. Several firms make Zorro expansion towers for the A1200, although not all support the superior Zorro 3 standard.

Commercial Zorro 2 expansion units for 16-bit Amigas are no longer manufactured. You may find a two slot 'Slingshot' expander, or the older but more versatile 'Bodega Bay' unit by shopping around in the Amiga second-hand market, though a big box Amiga might be a neater solution.

## ZORRO SLOTS

All Zorro expansion boards or 'cards' plug into a 100-way socket with 50 connections on each side, spaced one tenth of an inch apart. These connections carry digital data, addresses and control signals. They include the main signals from the processor and others specifically for Zorro. Many supply low voltage power to the card and return it via 'ground' lines.

The original Zorro cards expanded upon the 86-pin expansion connector on the side of the first production Amiga, the A1000. The A2000 includes a similar internal connector, renamed the co-processor connector. This intercepts all memory accesses before they are buffered for the main Zorro expansion 'backplane' slots.

Zorro boards are the same size as PC full-length ISA cards, but the Zorro connector is at the other end of the card, away from the back panel.

This foresightedness means that a typical Amiga slot can accept a Zorro card, a PC ISA card, or a 'Bridge board', linking the two together.

## BRIDGE BOARDS

Despite the name, Industry Standard Architecture or ISA cards have been periodically re-specified. The first were limited to eight-bit data and 20-bit addressing through a 62-way connector. ISA later grew to 16-bit data and 24-bit addressing, matching Zorro 2, by grafting a second 36-way connector in line with the first.

Cards made in the last decade usually plug into both connectors, although they may not use the 16-bit mode fully. For example, most '16-bit' PC sound cards transfer just eight bits at a time, and IDE drives use a mixture of eight-bit control and 16-bit data signals. Cards often skip connections to signals they won't use.

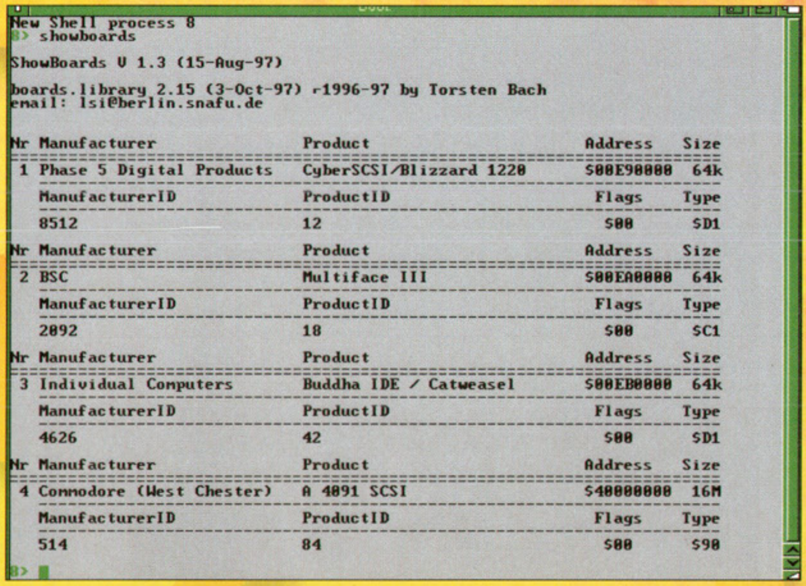
Amiga ISA slots are connected together and to the power supply but not to the Amiga processor, so they're useless without extra connections.

Usually this means a Commodore or Golden Gate bridge board. You could drive simple boards like MIDI players and internal modems from another Amiga port, such as the serial connector, if you could manage to find obscure ISA board specifications.

## VIDEO SLOTS

Not all Zorro slots have adjacent ISA connectors. The A2000 has four, the A3000 has only two, enough for a bridge board and PC graphics card but no more, and the A4000 has three. The A3000 and A4000 have a connector called the video expansion slot instead of the ISA in one of their slots. It's offset on an A2000, which is why Picasso IV graphics cards come with snap-out adaptors and flying cables.

The video slot supplies motherboard signals which are not normally available from Zorro, like sound, analogue and digital video and



```
New Shell process 8
8> showboards

ShowBoards V 1.3 (15-Aug-97)

boards.library 2.15 (3-Oct-97) ©1996-97 by Torsten Bach
email: lsi@berlin.snafu.de

Nr Manufacturer               Product                        Address    Size
============================================================================
 1 Phase 5 Digital Products   CyberSCSI/Blizzard 1220        $00E90000   64k
   ------------------------------------------------------------------------
   ManufacturerID             ProductID                       Flags     Type
   ------------------------------------------------------------------------
   8512                       12                               $00       $D1
Nr Manufacturer               Product                        Address    Size
============================================================================
 2 BSC                        Multiface III                  $00EA0000   64k
   ------------------------------------------------------------------------
   ManufacturerID             ProductID                       Flags     Type
   ------------------------------------------------------------------------
   2092                       18                               $00       $C1
Nr Manufacturer               Product                        Address    Size
============================================================================
 3 Individual Computers       Buddha IDE / Catweasel         $00EB0000   64k
   ------------------------------------------------------------------------
   ManufacturerID             ProductID                       Flags     Type
   ------------------------------------------------------------------------
   4626                       42                               $00       $D1
Nr Manufacturer               Product                        Address    Size
============================================================================
 4 Commodore (West Chester)   A 4091 SCSI                    $40000000   16M
   ------------------------------------------------------------------------
   ManufacturerID             ProductID                       Flags     Type
   ------------------------------------------------------------------------
   514                        84                               $00       $98
8>
```

**Details revealed by the ShowBoards Shell command.**

## ZORRO LIMITS

**Designer Dave Haynie reckons the upper limit for current Zorro 3 designs is about 100Mb per second, similar to the speed of Intel's PCI interface. To surpass that, AI must trim the published timings, which were tight by 1989 standards but nothing special today.**

**Zorro 3 still has advantages over PCI. It's an asynchronous bus which means it goes at the speed of any pair of communicating devices, rather than at a fixed speed governed by a master clock signal. This means you could have more slots and more variety in implementations.**

**It's backwards-compatible with Zorro 2. Not only can you fit old cards in a new system, you can mix Zorro 2 and Zorro 3 cards with the system automatically sharing the bus, switching between modes from one cycle to the next.**

**Zorro 3 supports QuickVector interrupts so each card can have its own interrupt handlers, called directly when the board issues the appropriate signals. This 'hardware arbitration' is much faster than the fallback of polling, where each interrupt starts a program that asks boards in turn which one needs attention.**

**QuickVector software support was patched out of later versions of Amiga OS by Commodore at the last moment to hide an A4091 design fault, but they work fine on Commodore 68030 and 68040 hardware. Some accelerator makers, such as phase 5 and MacroSystem US haven't implemented QuickVectors, even though the standard was published in 1991.**

control signals, which are otherwise confined to external ports.

Video Toasters are classic Amiga video port peripherals, but they can also accommodate flicker fixers, modulators, scan rate converters, genlocks and other multimedia magic.

Like the ISA socket, the video connector has been expanded since its introduction. The first model had one 36-way connector largely duplicating the 23-pin external video port. Most A2000s and all A3000s have a second connector in line with the first, providing more control signals and all twelve bits of raw digital video. The others supply four bits for ancient 16-colour monitors.

A4000s go further with 24-bit AGA graphics, expanding the second connector from 36 to 54 pins. My A4000 in a MicroniK tower case has seven Zorro 3 slots, five ISA sets and two video connectors, a common tower bonus. Similar expansion is available for the A1200, but requires extra motherboard connections to bring the video slots to life.

### ZORRO PRINCIPLES

Each Zorro slot is unique, unlike PC ISA slots which are wired in parallel, sharing signals. Most Zorro slot signals are identical, as any card should work in any slot, but some are reserved so individual slots can be selected or can signal the rest of the system uniquely.

These slot-specific signals are handled by a Commodore chip called Buster, short for Bus Terminator. Buster arbitrates between cards when several demand access at the same time. It also buffers and boosts signals and switches between Zorro 2 and Zorro 3 when it is necessary to do so.

> *"The Amiga decides where the board should go and allocates resources dynamically to avoid any risk of a clash."*

Three versions of Buster appear in Zorro 3 systems. Rev 7 was fitted on original A3000s and Rev 9 disgraced early A4000s. Rev 11 supports Zorro 3 bus master cards, Multiple Transfer Cycles and QuickVector interrupts. This suits high-performance cards like the A4091, CyberVision 64, FastLane Z3 and Silicon Studio.

Upgrade may also improve performance on cards that do not absolutely require the latest Buster. Even Rev 11 is not as fast as the specs permit, and requires careful programming to avoid the risk of deadlock when several boards demand control at once.

It will be interesting to compare new bus controllers from MicroniK and others with the Commodore originals.

The Buster upgrade is a plug-in replacement, except on some A4000s with Buster short-sightedly surface-mounted and difficult to change without special tools. If you upgrade one of these it's best to have a socket fitted, rather than just soldering a new chip into the space. This will let you take advantage of future Buster upgrades which could boost the performance of any existing cards.

### AUTOCONFIG

The key feature of Zorro, from the user's point of view, is 'AutoConfig', Commodore's trademark for Automatic Configuration. This dynamically assigns signals and memory space to each card, avoiding clashes, and associates software with the card, making it accessible in standard ways.

This software may be pre-programmed on the card or loaded from the SYS:Expansion directory when startup encounters the BindDrivers command. Most network and disk controller cards have code on-board so you can boot directly from the drives they control, although this makes them slightly more expensive. Cheaper cards have drivers loaded from disk, easing software upgrades. GVP's I/O Extender has space for a driver ROM, which is not currently used.

It's hard to appreciate just how important and clever AutoConfig is unless you've used lesser systems which, despite 'plug and play' claims, require a considerable amount of hardware adjustment to get combinations of cards to work in harmony. Some card combinations will never work.

In principle, AutoConfig is simple. Every board contains a small memory

**Continued overleaf ➡**

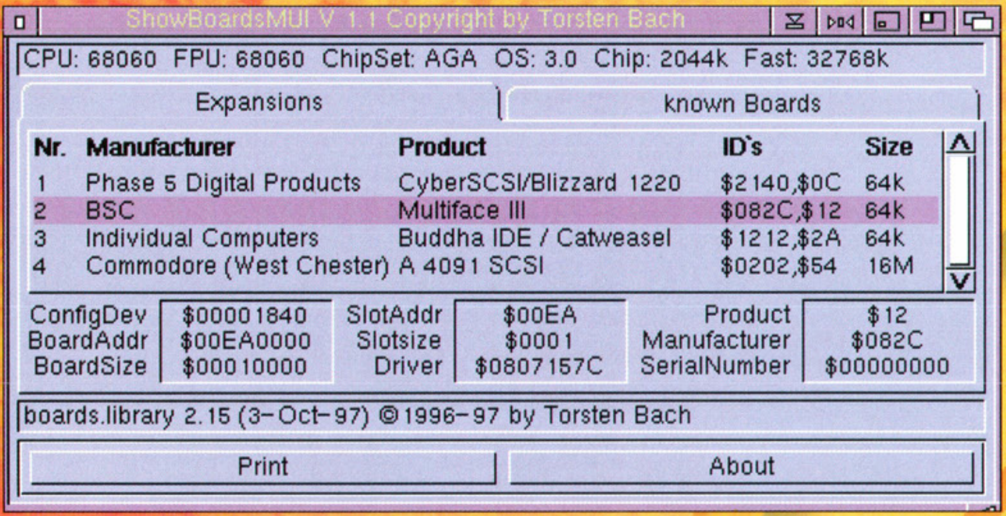
## ZORRO FAMILY VALUES

**The Zorro connector has never changed but the assignment of signals varies. Two versions of Zorro are in common use.**

**Zorro 2 allows 16-bit data and 24-bit addressing, like later ISA slots. It runs at the same speed as the memory bus in early Amigas, up to 3.6 megabytes a second, as each two byte transfer takes four cycles of the 7.1 MHz clock. Unlike ISA, it supports automatic configuration and can distinguish between cards on a backplane.**

**Zorro 3 is the modern equivalent, with all of the Zorro 2 features, plus 32-bit data and addressing like PCI. Further extensions speed up data transfers, interrupts and resource sharing within the system.**

**The 200-pin CPU connector in the A3000 and A4000 includes a set of Zorro 3 signals, so processor accelerators can appear in the expansion list and add memory to the system automatically. Unfortunately, some A3000 sockets lack connections for interrupt signals. These must be added to support cards with built-in disk controllers, like the Warp Engine and CyberSCSI.**




ShowBoards for MUI has a neat Workbench interface.

that records its type and requirements. Code numbers identify manufacturer, product type and optional serial number. These appear in the Workbench 3 Early Startup menu, shown if you hold down both mouse buttons after turning on the Amiga.

The numbers also associate boards with drivers in the Storage directory. Programs like SYS:Tools/ShowConfig and ShowBoards (on our CD) use these codes to identify boards by their name and description.

Zorro cards also signal the memory space they need – but not the location – from 64K to 8 megabytes for Zorro 2, and up to a gigabyte for Zorro 3 cards. When the board is configured, the system allocates space and tells the card where to appear in memory. The card must remember this and other details, like interrupt vectors, which are allocated by the system.

Boards can be 'shut up' temporarily for test purposes, disappearing from the system, although still physically connected. There is no need for PC-style configuration jumpers. The Amiga decides where the board should go and allocates resources dynamically to avoid any risk of a clash. It can automatically link RAM into the system lists, sensing the size in half-megabyte steps, or run code from the card's ROM to perform other initialisation.

## ZORRO GAPS

Zorro is good but not perfect. Zorro 2 may hit problems when several cards compete for mastery. This can cause 'bus starvation', where one blocks access for others. Zorro 3 reduces this risk with improved logic to share cycles fairly, but badly-behaved masters can still strangle one another.

Unlike its predecessor, Zorro 3 is a multiplexed bus, which means that the purpose of connections can vary with circumstances. This was necessary to extend Zorro 2 for 32-bit addressing and 32-bit transfers on the old 100-pin connector. Lines previously reserved for addressing had to be assigned to data. Multiplexing limits speed as the full address must be received and stored by the card before the signals can be re-used for data.

To get around this, Zorro 3 supports Multiple Transfer Cycles, like the burst mode used in RAM sub-systems. This boosts transfers of several nearby data values.

The full 32-bit address is only needed for the first word. After that, nearby words can be accessed by sending just their offset, using a modern Buster chip and a small group of dedicated signals.

Zorro 2 cards are more closely tied into the system than Zorro 3. They can spy on transfers inside the computer, keeping track of custom chip changes. For example, Action Replay lets you snapshot or tweak your system at any time. This is impossible with Zorro 3 as the cards are unaware of accesses that bypass their own memory space. Action Replay also uses the Zorro 2 facility to generate 'non-maskable' interrupts which cannot be disabled by software.

Zorro 3 has no equivalent, which wouldn't be a problem if programmers stuck to Commodore's guidelines and avoided disabling interrupts for long periods. However, some major releases flout this rule, disrupting serial ports and other systems.

Zorro 4 should restore Non Maskable Interrupts with appropriate warnings for programmers, and squeeze the timings so new cards can surpass PCI speeds. The maximum current required for signals from each card should also be reduced slightly.

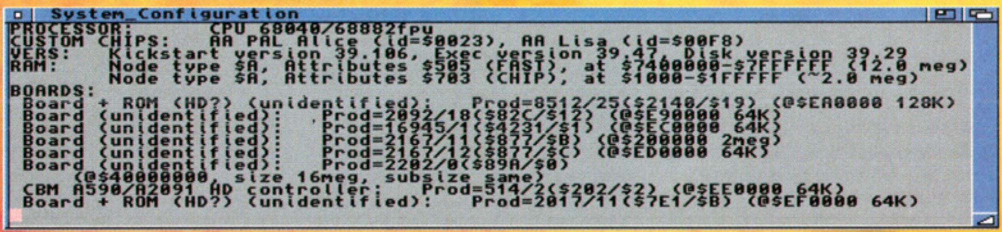
Zorro signals must supply up to 64 mA each, enough to light up a Christmas Tree, and rather more than most modern FPGA semi-custom chips can deliver. This benefits reliability and expansion potential but makes it difficult to design boards with all-in-one control chips as it requires extra buffers to boost the signals.

Zorro 3 is pretty good already, when it is fully implemented. Current implementations could be boosted further without the need for a brand new standard.

The asynchronous design makes incremental changes much easier than with synchronous buses like Zorro 2, ISA or PCI.




Eight 'boards' (Picasso configures as two) and STILL one vacant slot in Simon's MicroniK tower!




Commodore's ShowConfig only identifies their own A2091 board by name, and even then can't tell it from an A590, with the same Config codes.

# How to build your own zorro

Those of you with older Amigas may be surprised and delighted to know the 86-way connector on the side of your machine contains most of the Zorro 2 signals. You may be more surprised and delighted to know that this port can be turned into a simple, single-slot Zorro expansion with just a handful of cheap components and a steady hand on the soldering iron. It lacks a few signals that would be present on a real Zorro backplane and is less robust, but it works!

This project is easy to build, with only one chip and no soldering to sensitive components, but you need to be able to work methodically. If you can't solder, give this a miss. We cannot take responsibility if you mess things up, and if you do connect the wires wrongly then you risk breaking whatever card you may try to attach.

Hacks along these lines appear in Aminet's hard/hack directory and on our CD. Our information came from official Commodore documents. Zorro 2 specifications are in the *Amiga Hardware Reference Manuals*, published by Addison Wesley. The third edition covers Zorro 3.

The A500/A2000 Technical Reference Manual includes hardware, firmware and software details for Zorro 2, plus backplane and card examples. Commodore's A4000 Hardware Developer Notes have a Zorro 3 sample design, video and 200-pin slot details. Developers can get these direct from Amiga International.

Joe Pellegrino's 2000 slot project uses two connectors, one chip and a ribbon cable. This will get an A1000 running Commodore and GVP RAM and disk controllers, as well as Supra RAM and modem cards. Joe can supply a kit of parts to readers in the USA. This hack is very sensitive to cable length – he had to shorten the cable to make GVP's series 2 hard drive interface work.

Gabriele Peterle's simple Zorro 2 slot is little more than a socket, leaving the original 86-way connector free, allowing him to use an A500 RAM and HD expansion alongside Picasso 2 Zorro graphics.

It does lack the 7 MHz clock signal which some cards require, and involves soldering to the A500 expansion. This gets signals neatly from one side to the other, but risks damage to existing equipment.

The *AF* Zorro adaptor has been tested with ACT's Prelude sound card, Emplant Deluxe, BSC's Multiface 3 and Tandem IDE, MacroSystems VLAB digitiser, and ASDG's LANrover Ethernet card.

> "The more hardware you add to your A500 or A1000, the more likely that you'll need to augment the power supply."

Please remember that this is a hack. It works for us and for others, but your mileage may vary. A real Zorro Amiga is the safest bet if you simply must have a particular board working.

## OVERVIEW

The 86-way connector on the side of the Amiga corresponds closely to the first 86 pins on a Zorro slot, only upside down. Pin 1 is at the top, nearest the back of the computer, whereas it's at the bottom on the Zorro socket. The simplest way to join the connectors is to solder even numbered pins from one connector to the other, and add wires from the top row on the 86-way to the bottom row on the Zorro socket.

The card then plugs into the Zorro connector with components facing down, looking inelegant but working fine. You'll probably want to improvise a case in order to reduce the risk of any short circuits.

The scarcest components are the 86 and 100-way edge sockets. Similar parts appear in other computers, but Amiga ones are longer. You can get Zorro slots from Paxtron in New York, and both are available in Germany from Simons Electronic, but they refuse mail order outside Germany. If you find a UK supplier, please let us know!

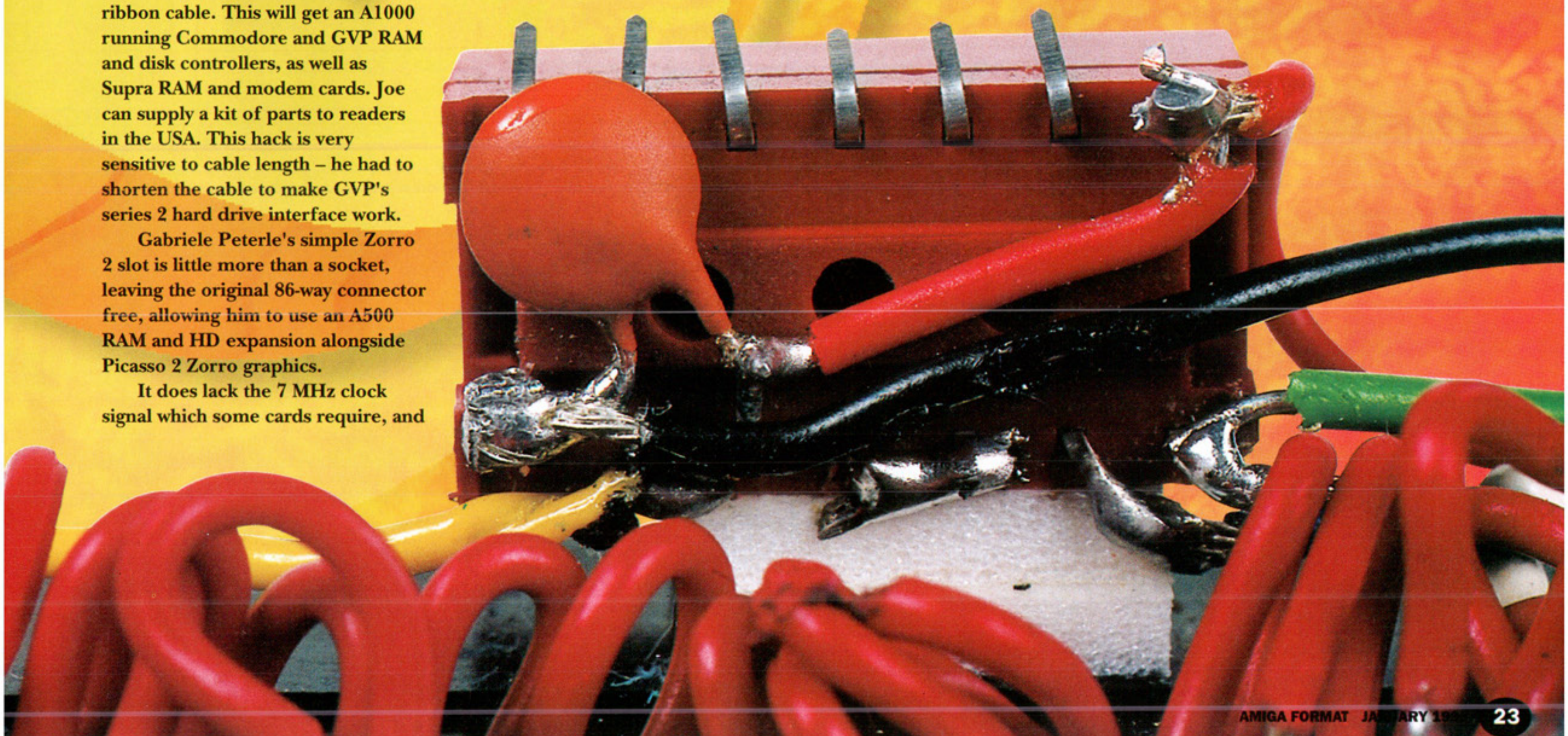
Gabriele improvised a Zorro slot by pulling two 62-way sockets from a scrapped IBM backplane and then cutting and joining them to make one 100-way connector. Two ZX Spectrum edge connectors could serve similarly, with less wastage, or you could get a 50 way and a 36-way connector from Maplins for a mere £1.85 (page 435 of the latest catalogue).

If you do opt for this approach, the real difficulty is getting the pitch spacing correct, but a vice and a small hacksaw will have the ends off in no time. Be sure to use a strong epoxy glue to securely join the bits together.

## CONSTRUCTION

Wires feed signals to high-numbered Zorro pins with no equivalent on the 86-way connector. Fit these first. Figure 1 shows the wires for Reset and Data Output Enable signals. Solder these close to the 100-way connector, from pins 53 to 94 for reset, and 5 to 93 for DOE. Label the connectors to avoid miscounting pins. Pin 1 is at the top of the 86-way connector and pin 2 is at the

Continued overleaf ➡



Oooh it does look gruesome in close up. The underside of the DIP socket shows the connections that are required – it's best to do these first.

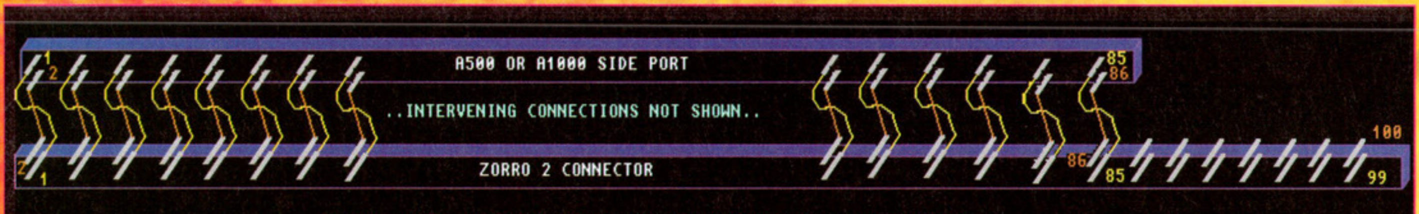



FIGURE THREE : 86 WAY TOP ROW TO ZORRO BOTTOM ROW & VICE VERSA

**There is a whole lot of soldering to be done here. The top row of pins need on the 86-way connector need to be connected to the bottom row of pins on the 100-way and vice-versa. It would be a good idea to mark some numbers on the ends before you start.**

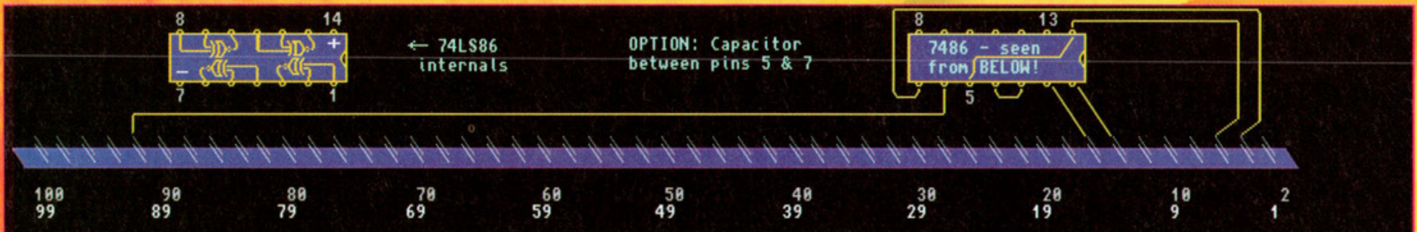



FIGURE TWO : SEVEN MEGAHERTZ CLOCK SYNTHESIS

**The logic chip connections should be made to the pins of the DIP socket. It is quite simple to connect the socket to the connectors, but make sure you put the chip in the right way round!**

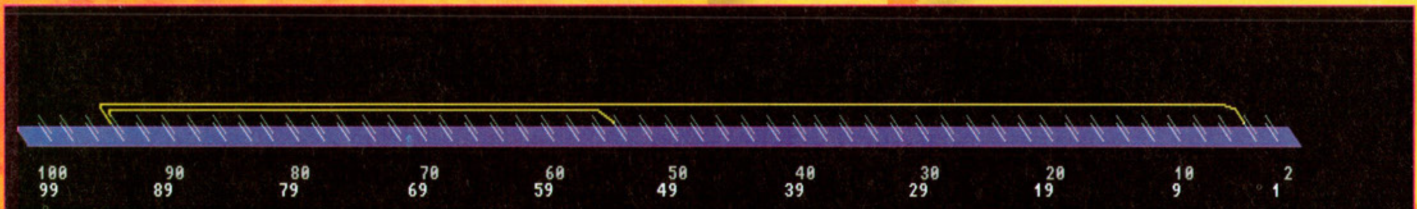



FIGURE ONE : RESET AND DATA OUTPUT ENABLE CONNECTIONS

**Finally a few connections have to be made to put the reset line and clock signal in the right place. These are simple links and should pose no significant problem. Now remember to test all the links before you continue.**

top of the Zorro one. Double-check before and after each connection as they're hard to alter later.

## CHIPPING IN

Next you need one common logic chip, a 7486, widely available from electronics suppliers for about 50p. This TTL chip contains four two-input Exclusive OR gates. Variants are distinguished by letters in the name. The original 7486 is obsolete, 74LS86 is the low power equivalent and 74F86 is a more modern, faster version.

Any of those will do, and most others with 74 at the start and 86 at the end, such as 74S86, 74L86, and 74ALS86. Avoid parts with HC inside the number, and make sure yours is the DIP (dual in-line pin) package with legs to fit a socket, rather than a fiddly 'surface mount' version.

Figure 2 shows the connections between the adaptor and the 7486. This combines two signals from pins 14 and 16 on the computer edge connector to generate 7 MHz pulses at Zorro pin 92. Two more wires supply power.

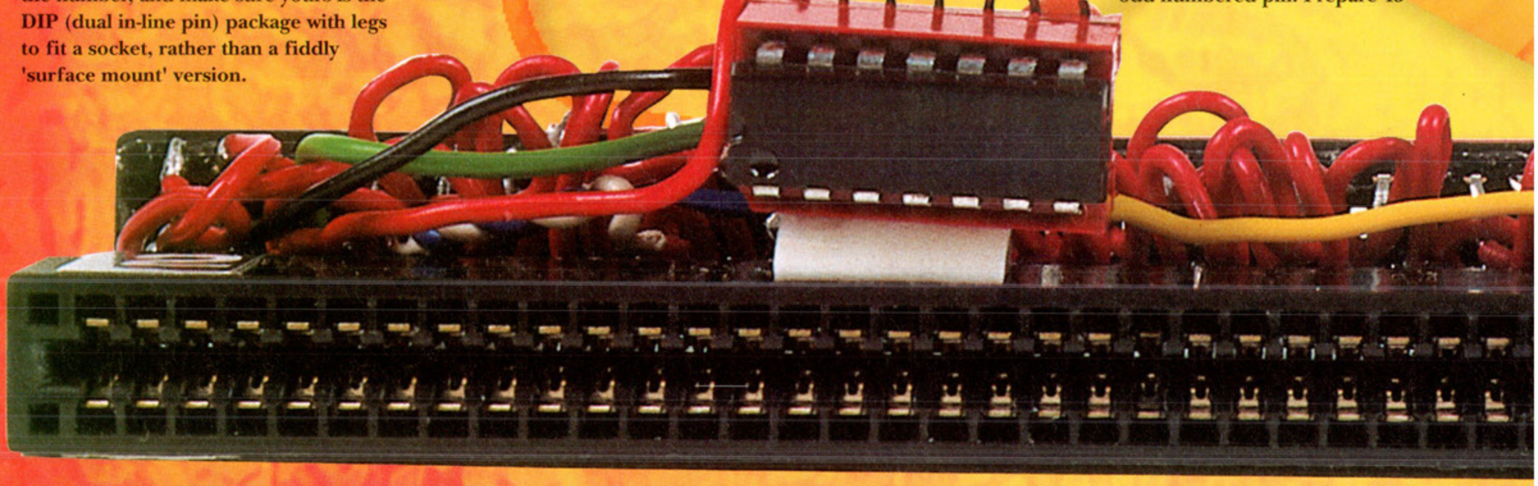
Table 2 lists connections by Zorro and chip pin numbers. Figure 2 shows the chip from below as it's easiest to connect up that way. After soldering, stick the chip socket to the Zorro connector. Don't plug in the chip until you've checked your soldering. Make sure you get it the right way round. Wires to Zorro pins 14 and 16 should be nearest the notched end of the chip.

The last component is optional but recommended. A small capacitor, connected between the power supply pins close to the chip, acts as a reservoir which will help to smooth out any local fluctuations.

Suitable capacitances range from 10 nF to 470 nF (aka 10,000 pF to 0.47 μF). The exact value does not matter. I soldered this between pins 5 and 7 under the chip socket, using the remainder of one leg of the capacitor to connect pin 5 to pin 14, the positive supply, as photographed.

## LOADSA WIRES

Now take the 86-way connector and solder a 25mm flexible wire to each odd numbered pin. Prepare 43



short wires, stripped and tinned at each end, and solder them to the back of the socket, avoiding shorts between adjacent pins. Later, these wires will fold between the even-numbered connections, down to the bottom row of Zorro pins.

The next step is to solder even-numbered pins directly between the two connectors. I used a big lump of BluTac to hold the 86-way socket about 5mm higher than the Zorro one, so the top row of pins of the Zorro connector just touched the bottom row from the Amiga socket. Don't overlap the pins as that reduces the space for the wires that must cross to the other side, and the Zorro socket ends up too near the edge of the A500 to fit properly.

When they're lined up nicely, solder all 43 pins between the two connectors. This is the main mechanical link and will be hard to access later, so check each connection is solid and not shorted to its neighbour before you move on to the next. You've now done 70 per cent of the soldering. Phew!

The final step is fiddly. Feed the short wires from the top row of the A500/A1000 connector between the linked pins in the lower row, down to the bottom row on the Zorro socket. Solder them up, carefully.

## TABLE 1: ADAPTOR COMPONENTS

| | |
|---|---|
| 74LS86 Quad EOR gate | Maplin YF36P |
| 47 nF decoupling capacitor | Maplin YR74R |
| 14 pin DIL socket | Maplin BL18U |
| 0.1" pitch double sided PCB edge connectors:1x 100 Way , 1x86 Way | see text |

Maplins: Tel: 01702 554000, Fax: 01702 554001, web:www.maplin.co.uk
Paxtron: Tel:001 914-5786522, Fax: 001 914-5786550, E-mail: paxtroncorp@rknet.com, web: www.paxtron.com

## TABLE 2: CHIP CONNECTIONS

| 7486 | Zorro | Purpose |
|---|---|---|
| 1 | 14 | C1 clock in |
| 2 | 16 | C3 clock in |
| 6 | 92 | 7 MHz out |
| 7 | 4 | Ground |
| 14 | 6 | + 5 volts |

ALSO link pin 3 to pin 4 of the chip, and pin 5 to pin 14.

## TESTING

Now test your work before you plug anything into it. Use an Ohmmeter to check for shorts between all pairs of pins on the 86-way connector. Analogue meters and continuity testers respond faster than digital multimeters.

Move the test probes one at a time, leapfrogging along the row. Check pins 1 and 3, move the probe from pin 1 to pin 5, check again, then move the other one from 3 to 7, and so on. Then repeat the process for the other, even-numbered side, eliminating any short circuits. You will probably find some between adjacent pins unless your soldering was particularly neat.

A single short could spell disaster for your board or your Amiga, so don't skimp on these tests.

Next, check the links between the two connectors. Work your way along the pins from 1 to 86, again moving one probe at a time. Each pin should be connected to the corresponding one on the other connector, but not to any neighbour. Move the probes on each connector alternately, looking for closed and then open circuits as you check opposite and adjacent pairs.

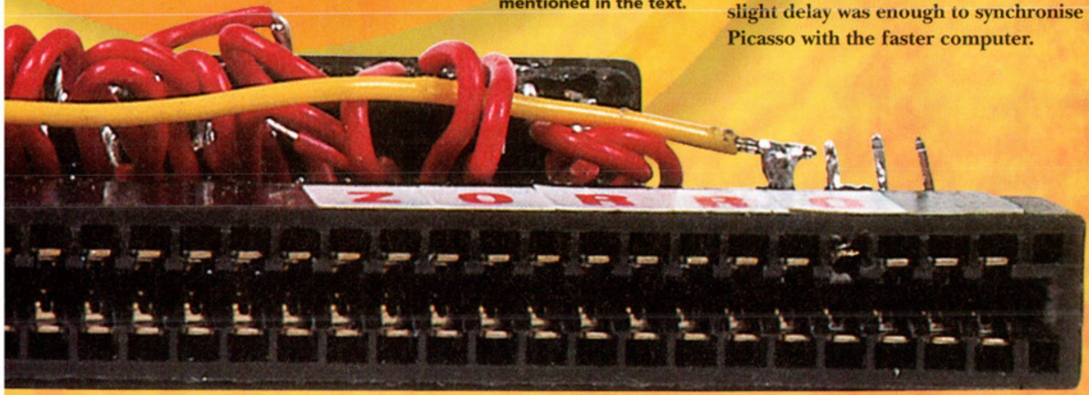
Remember that the top row of each socket must connect to the bottom row of the other. Correct any mistakes you find, whether open or short circuits.

> "It's hard to appreciate just how important and clever AutoConfig is, unless you've used lesser systems..."

Inspect your work one last time by eye, then plug in the computer on one side, the card on the other. Switch on and run ShowBoards or ShowConfig to check AutoConfiguration.

## TROUBLESHOOTING

If it doesn't work, power down at once and re-check the connections. If the computer fails to start, the reset signal may be premature. When he added a CPU accelerator, Gabriele's adaptor locked up unless he supplied a buffered 'bus reset' signal to Zorro pin 94 from pin 11 of U37, a 74LS32 logic gate on the issue 5 A500 motherboard. The slight delay was enough to synchronise Picasso with the faster computer.



Although it looks a jumble, all these wires do end up in the right place. The long yellow wire clearly visible here is the clock line mentioned in the text.

Cards may autoconfigure several times, filling the configuration memory space. This shouldn't stop them from working on a single-slot expansion, but indicates marginal timing or signal strength. Extra ground connections to Zorro pins 87, 88, 89, 90, 99 and 100 or a better power supply may help.

The more hardware you add to your A500 or A1000, the more likely that you'll need to augment the power supply. We used standard A500 supplies with all the boards listed, but only one at a time. Extra drives and internal expansion add to the load, and fully-expanded systems need a stronger supply.

## EXTRA SLOTS

This project was suggested by ACT wizard Marc Albrecht, who got a 2630 accelerator, Prelude, IDE and Multi-I/O cards all working at once on his A1000, using a home-made circuit board. If you opt for several sockets, configuration lines should be wired in series between them, so pin 11 from the first goes to pin 12 of the second and so on.

You should fill slots sequentially, starting with the one nearest the computer as each must pass the configuration signal to the next when it's done. Real Zorro backplanes bypass empty slots automatically.

Only one card can perform DMA (direct memory access) as there's no Buster chip to arbitrate between competing boards. Relatively few Zorro cards use DMA. Real Zorro backplanes include buffers and termination to boost and stabilise signals. The more slots you add, the more desirable these become. A1000s are generally more robust than A500s, so they can drive more cards without buffering.

There's no hard and fast rule – it really just depends on your computer, power supply and the choice of cards. We wish you luck bringing Zorro to your A500. Happy hacking!

# Alien Data Emulation 2 File Formats




**Simon Goodwin** catalogues alien file formats and converters that let Amigas use their graphics, sound, programs and data.




AFCD22:-In_the_Mag-/Emulators

## ON AFCD22

**The *AFCD* includes graphics, text and sound file converters galore, plus updates of WzonkaLad and PC Task to versions 0.91 and 4.3.**

This concludes our discussion of data emulation from *AF* issue 102, about persuading Amiga programs to use files from foreign systems. It's often the best way to share information without the overhead of emulating another processor.

### GRAPHICS

Patches and 'datatypes' dynamically convert files, so Amiga programs receive ILBM (InterLeaved Bit Map) data, whatever the original format. Workbench 3 datatypes can decode many file types, but results are limited to eight bits per sample or pixel. Specialised converters support higher resolution, export and older systems.

The most general Amiga format is 24-bit IFF, but it's verbose and, like TIFF, it's often used for scans. JPEGs encode full-colour images more concisely, but blur detail and demand a fast processor. The ubiquitous GIF is limited to 256 colours.

Programs like *Photogenics*, *ImageFX*, *AdPro* and *PowerScan* support conversions as well as graphical transformations. *Image Engineer* uses the SuperView Library to read and write most common graphics formats and can boast PowerPC support.

NetPBM is a huge collection of command-based tools ported from Unix. NetPBM can handle almost all picture formats, via its own intermediate formats like PBM (Portable Bit Map) and its colourful relatives PPM and PNM.

> Workbench 3 datatypes can decode many file types, but results are limited to eight bits per sample or pixel.

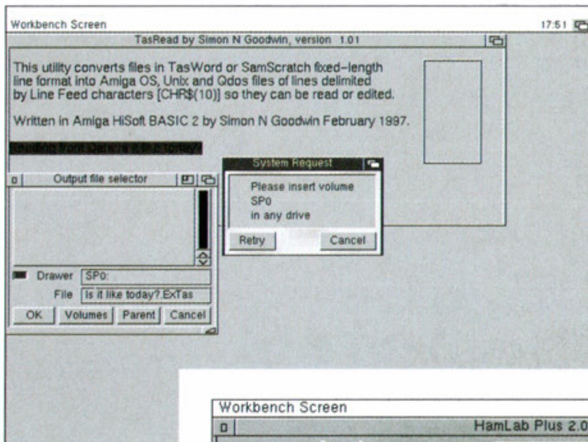
Rather than provide hundreds of converters from any one format to any other, NetPBM comprises 200 programs that convert to and from its own ultra-simple formats. Run any pair, joined by a temporary file or 'pipe' and you've got thousands of reliable, extensible converters. NetPBM gobbles RAM and temporary storage, but it's two-step approach makes it the most versatile still-graphics converter around.

### VARIANTS

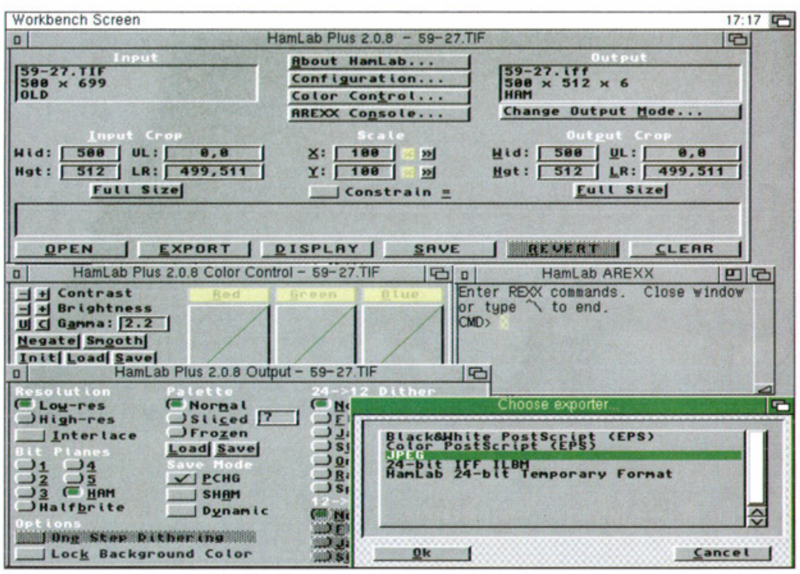
Many converters and datatypes claim full support for a format, but in practice reject or misinterpret some files. Even the shape of pixels may cause problems, especially for Macs which only expect square pixels. A PCX file is essentially a copy of PC video memory with scores of variations. PCX converters and datatypes often ignore variants like the chunky four and 16-colour PC graphics. Amiga HAM (Hold and Modify) modes confuse many other systems. Convert these to 24-bit ILBM, TIFF or JPEG before exporting them.

Animation transfer is tricky. The Amiga's CDXL is based on HAM. PCs use FLI and AVI, while Apple favour QuickTime. Players for these abound on Aminet, but not recorders. MPEG is portable but processor-intensive and unsuitable for editing, so animations should be transferred a frame at a time to preserve quality.

Once an image is on your screen it is easy to save it out in IFF format with a screen-grabbing utility, although some will struggle with the more obscure screen modes. I normally use QuickGrab and CRsnap for AGA screens, CyberGrab for Picasso96 and CyberGraphX, and PicassoPhoto for Picasso 2 high-colour images.




**TASREAD tidies up text files with fixed-length lines.**




**HAMLAB can export images in Postcript or JPEG format.**

Formatted text and line graphics may use Adobe's Postscript format. Amigas can print these via Post datatype or version 3.3 or later of the PD Ghostscript interpreter, which also supports the compressed PDF Proprietary Document Format used for datasheets on the Web.

If commercial tools and Aminet cannot meet your needs, I recommend the book *Graphics File Formats* by Kay and Levine, published by McGraw-Hill, for detailed information. Insist on the second edition as the original version contained many errors.

## SOUND

You might expect trouble if you need to move a MIDI sequence. Sequencers use custom data files and converters are rare, but there is a lateral solution if you put both sequencers into the same room. Just link the MIDI interfaces, and set one machine to play on all channels and the other to record. MIDI can also transfer samples and synth patches.

Music sequenced for 'General MIDI' synthesisers can be replayed using GMplay, but that's over 5Mb in size, even when compressed. General MIDI supports 128 predefined instruments so it needs lots of samples. The quality is very high, even on a standard Amiga, with 14-bit stereo replay at sample rates of up to 60KHz.

Tracker modules are harder to port because they use mixing, timing and pitch control features that are not part of the MIDI standard. The success of MODs on the Amiga and ST means that most other micros can play them. There are MOD players for the Apple Mac, PC and even MGT SAM, although these consume a lot of CPU power, and results are not always quite what you'd expect.

Going the other way, more predictably, PlaySID is a stand-alone Amiga player for Commodore 64 tunes.

> Tracker modules are harder to port because they use... features that are not part of the MIDI standard.

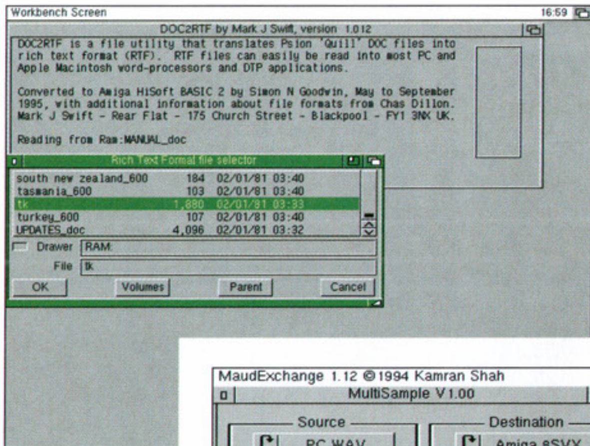
## SAMPLES

Sound samples can be eight or 16-bits wide, signed or unsigned, either 'raw' (just the sample values) or 'cooked'(prefixed with 'header' information). Signed values use positive and negative offsets around a central base-line, whereas unsigned samples are offset from the bottom of the wave, with silence being a mid-scale value (128 or 32768) rather than zero. The wrong sign setting will render the sample recognisable but distorted.

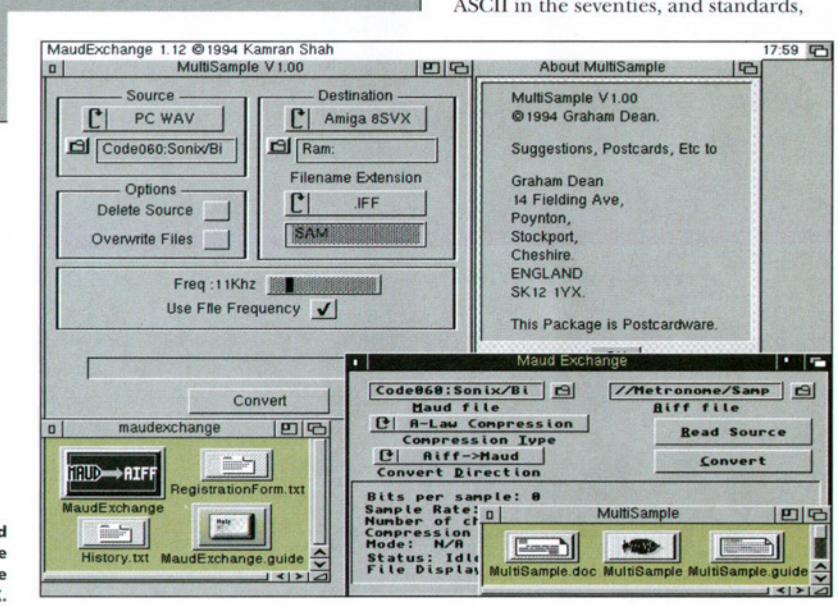
Cooked files played as raw have short bursts of noise when header information is misinterpreted as samples. Edit these out of unfamiliar formats with a sample editor.

Some audio files are compressed, either by encoding the difference between samples, using non-linear functions so that large changes are approximated (aLaw or uLaw), or by converting them into frequencies rather than amplitudes.

The latter scheme, used by cellphones, MiniDisc, DCC and MPEG, requires lots of CPU power but gives small files. Aminet has Codecs (coders and decoders) but most of these are inefficient Unix ports.




DOC2RTF converts Psion documents into Rich Text.




MaudExchange and MultiSample are much easier to use than SOX.

Common sample formats are Microsoft WAV and AIFF (later AIFC) on the Mac and Amiga. Both resemble IFF, while VOC and 8SVX formats favour PC Soundblasters and Amiga hardware respectively. Many programs save and load uncompressed RAW data, easily moved if you know the size and signing of the samples.

SOX is a powerful, command-driven converter, ported from Unix. SoundMachine is a Workbench converter for VOC, WAV, IFF and RAW files. AHI reads AIFC and AIFF as well as RAW and 8SVX, writes to files as well as sound cards, and trumps audio datatypes by supporting more than eight-bit resolution.

AudioLab handles AIFF, CDDA, Macrosystems MAUD and WAV formats, with filtering and sample-rate conversion to tune samples for your replay hardware. ACT's revamped Samplitude also supports MIDI, MPEG and ADCPM compressed audio.

## NEXT TRANSFERS

Plain text files generally use ASCII, the seven-bit 'American Standard Code for Information Interchange', but there are exceptions. EBCDIC (Extended Binary Coded Decimal Interchange Code) was IBM's first bash at an eight-bit alphanumeric code, where even the digits were in scrambled order!

Digital Equipment (DEC) pack three characters from a set of 40 into 16-bits, known perversely as RAD50, where RAD stands for Radix and 50 in base eight is forty, decimal! Similarly, ICL squeezed four characters into a 24-bit word. Such codes are easily unscrambled in AREXX, BASIC, C or Assembler.

Old teletypes use five-bit code with two sets of 30 characters and 'shifts' between them. Some comms software supports this 'Murray' or 'Baudot' code. New teletypes introduced seven-bit ASCII in the seventies, and standards, however inadequate, reigned at last.

ASCII officially defines code values from 0 to 127, but slight variations are common. Non-display codes from 0 to 31 may perform cursor movement, colour changes or divide data items.

Such 'control codes' may need conversion to suit the Amiga.

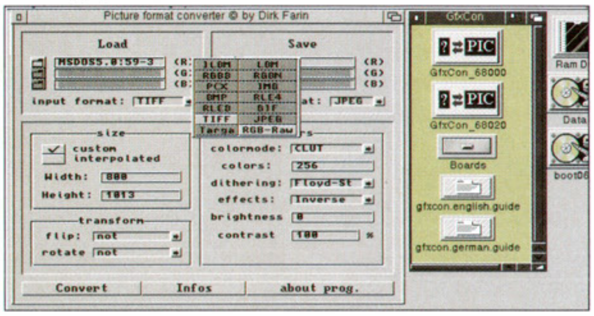
Letters and digits always use the same codes, but ASCII disdains foreign accents and currency signs. Sometimes characters in the ASCII set are redefined to make up for this. Character 35 is officially a hash '#', known as a pound in the USA. Some systems replace it with the UK pound and Italian Lire symbol. ASCII defines the last code, 127, as an invisible delete sign, but Sinclairs see it as a copyright symbol.

Strict email systems insist on pure ASCII, 'bouncing' mail containing codes above 127. UUencoders let you email eight-bit characters safely, expanding

Continued overleaf ➡

arbitrary codes into sequences from a restricted character set. UUdecode restores the original. Aminet has many UUtilities, and AdMail and YAM handle encoding automatically. MIME is an alternative, carrying extra information about files.

Computers use eight-bit character codes internally. ASCII reserved the eighth bit for 'parity' error checking, but today it doubles the size of the character set, adding codes from 128 to 255. IBM and Microsoft assigned a mix of box graphics, Greek letters and accented characters, including some inventions, to the high character codes.




GFXCON supports dithering and lots of input formats.

Printer manufacturers tweaked their hardware so PC text printed roughly as it appeared on PC screens. Others assigned block graphics, reversed, or user-definable characters to the 'spare' codes, so the printed text might appear very different from its screen representation.

Microsoft Windows switched to the ANSI (American National Standards Institute) character set, based on ASCII plus accents, currency symbols, fractions, and superscripts in the second half. 34 of the new codes are reserved for invisible controls, mostly in the range 128 to 159. Box and block graphics are lost, but they are usually better implemented with pixel graphics in Windows anyway.

Amigas, being designed rather than thrown together, used ANSI from the start. So does Linux, so the world may yet catch up with us.

Despite ANSI, variations persist. Switch to a standard Amiga font like Topaz if accents or punctuation give any unexpected results.

## END OF THE LINE

ANSI codes are summarised at the back of Ralph Babel's *Amiga Guru* book. The first 32 symbols are 'control codes', which are not normally displayed. They mark the end of lines, columns and other formatting. Vintage ASCII teletypes expect two characters at the end of each line – Line Feed, (10, LF) rolls the paper along, and Carriage Return (13, CR) returns the printing 'carriage' to the margin.

IBM systems use both CR and LF, but others make do with a single line-end marker. Unfortunately, some use CR and others prefer LF. Spectrums and Tandies favour CR, while Amigas, QLs and Unix boxes put LF at the end of a line. Without conversion, you get splodges between lines, double spacing, or everything on one line.

CrossDOS can translate these on the fly, which is great for text but fatal for binary files, so a commodity switches translation on and off.

Further control codes are 9, TAB to separate columns, 12 (VT) for pagination and 27, ESC, to select printer options and styles. Frank Swift's CRLF reformats text for Amiga, CP/M, Mac or PC, stripping or translating control characters. Dirk Stoecker's TAB command adjusts columns by exchanging tabs and spaces.

Rich Text Format (RTF) represents formatted text, with configurable margins, fonts and tabs, using standard ASCII codes. Most serious word processors read or write RTF, including recent versions of Amiga *Wordworth* and *Final Writer*. It's a good intermediate if you don't want the hassle of having to reformat plain text.

Even if your program cannot write RTF, you may find a stand-alone converter like DOC2RTF, which converts Psion _DOC files into RTF.

The Spectrum wordpro *Tasword* and *Forth* programs use fixed-length lines with no explicit end marker. Short lines are padded with spaces. TasRead unpacks such files, converting them to conventional ASCII.

## BEYOND ASCII

ISCII was an attempt to internationalise ASCII, now incorporated into Unicode, a 16-bit code with provision for many alphabets, including Chinese. Unicode features in the Web language Java, another source of machine-independent programs. Amiga versions are promised, and Frank Swift plans to support Unicode in his handlers.

UTF-8 supports the full 16-bit Unicode packed into one, two or three bytes. Standard ASCII symbols use single bytes, with two bytes for codes up to 2047, including Greek, Hebrew, Cyrilliic, Arabic and basic Greek. Three bytes encompass all the rest: dingbats, technical symbols and eastern alphabets, such as Tibetan, Tamil, Thai and Taiwanese.

## PROGRAMMING

Amiga compilers and interpreters are available for most languages, but programs may need a lot of adaptation if they were not written from scratch with portability in mind. Portability is more a matter of programming style than choice of language.

Most conversion problems stem from system-specific language extensions. If you want portable code, disable these with compiler controls.

After sorting out the character set, tabs, and line ends, check for data dependencies. Many C programs rely on the order of bytes in a word, which varies between 'little endian' Intel and 'big endian' Motorola systems.

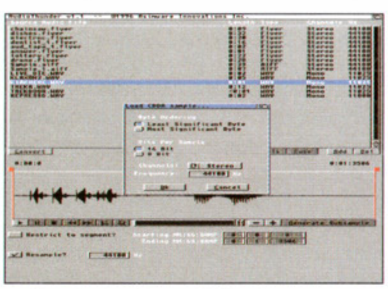
Programs that access bytes may need to swap them around for consistent results. The Unix gurus call this the 'NUXI' problem – store 'UNIX' on one machine and get 'NUXI' (or 'XINU') when you read the data on another system.

'Portable' C programs from workstations often expect Unix and X Windows library routines unknown to the Amiga. IXEMUL is a quick and clumsy way around this, used by the Unix-like development environment ADE and many emulators. It's a shared library that translates Unix system calls into approximate Amiga equivalents.

Blitz and Amos may suit Amiga games, but HiSoft offers the best option for portable BASIC. HiSoft BASIC is compatible with Microsoft's MBASIC (on many micros), QuickBASIC and QBASIC. It is often bundled with IBM clones, and it recognises most ST BASIC, QL SuperBASIC and Amiga BASIC commands.

## AMINET DATA CONVERSION GOODIES

| | | |
|---|---|---|
| gfx/conv | Various | Graphics format converters |
| gfx/pbm | Various | Portable Bit Map conversion |
| gfx/show | SView | SuperView graphics library |
| mus/edit | amisox33 | Audio file format conversion |
| mus/edit | Various | Tracker and MOD converters |
| util/arc | Various | Compressors and encoders |
| util/conv | ConvASKI | PC/Mac/Psion text to ANSI |
| util/conv | Doc2RTF | Psion Quill to Rich Text Format |
| util/conv | TasRead | Fixed length lines to Amiga |





*Audio Thunder* (above left) is the Amiga's latest answer to odd sound formats. You don't have to do all conversion at your end – the Mac's *Graphic Converter* supports IFF (above right).




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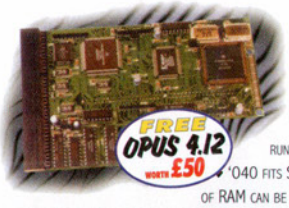
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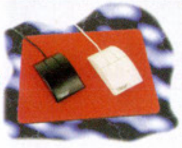
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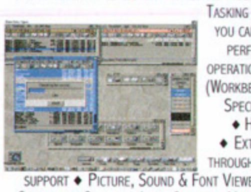
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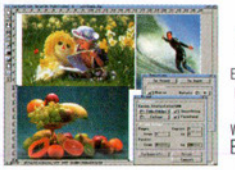
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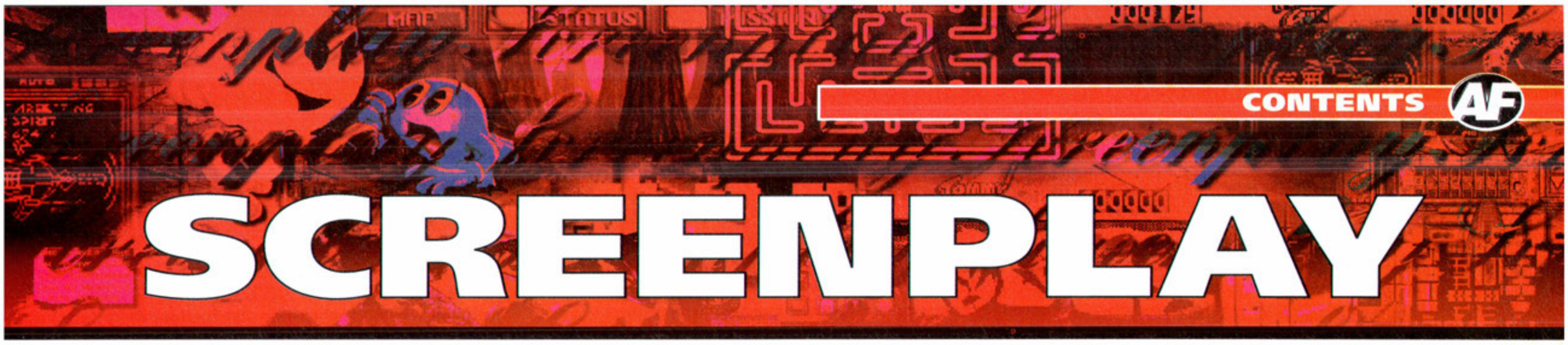
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# SCREENPLAY

## The latest games, the handiest hints and some clever programming from you!



Although we've known about *Myst* for a long time, it's been very pleasing to finally get my hands on a version of the game that's mostly playable. *Myst* really is going to be big news in the very near future, so check out that preview now. One thing that still makes me shake my head is the lack of consistency in the games that are coming out commercially. Although Vulcan had a rocky patch when they first started out, they're now producing consistently good quality titles. Keep 'em coming. Some of the newer software houses need to learn from this. If your first couple of releases are dogs, people won't buy 'em. That doesn't mean give up though, merely take more time considering which games you should be releasing. Onwards...

**Andy Smith**

## AMIGA FORMAT'S REVIEW POLICY

### WHAT OUR REVIEW SCORES MEAN

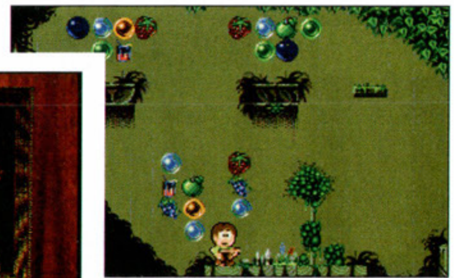
Every month we scour the world's software houses for the latest and greatest Amiga games. We try to ensure we keep you as up to date as possible and we'll stop at nothing to bring you the best, definitive, no-nonsense reviews of the games that matter.

| | |
|---|---|
| **90+%** | The crème de la crème. Only the very best, most playable and original games are awarded an AF Gold – the most highly prized rating there is. |
| **80-89%** | These games are very good, but due to minor flaws are not the finest examples of their genre. |
| **70-79%** | Good games which are worth buying, especially if you have a special interest in a game type. |
| **60-69%** | Average releases with somewhat limited gameplay and appeal. Games in this category tend to be flawed. |
| **50-59%** | Below average games which are unlikely to impress your mates or your wallet. Avoid. |
| **40-49%** | Overwhelmingly poor quality games with major flaws and appalling gameplay. |
| **Under 40%** | The absolute pits. |





**Prepare yourself for the gaming experience that is *Myst*...**



**Fans of tricky platformers should be pleased with *Sword*, coming soon.**





**Tricks, traps and monsters are ready to catch out the unwary adventurer in *Final Odyssey*.**





**There's trouble at t'dungeon. Can our brave heroes survive the attacks of the nefarious Hair Beast?**





**It's snowing! Yippee! Time to steal gold, rescue prisoners and kill enemies! Ah, the festive season.**





# Previews

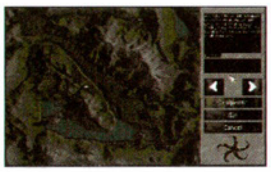





**The future is never far away (oh dear, he's off again) and one man who can see into it is our Andy Smith. Here's what he's seen...**

# The Shadow of the 3rd Moon

The Shadow of the 3rd Moon £TBA
Release Date:. . . . . Christmas '97
Titan Computer: 0049 421 481620
email:. . www.vossnet.de/titanhb/





Having locked onto an enemy plane, it's time to give 'em a taste of rocket. Dogfighting action in The Shadow of the Third Moon.





Firing your single shot laser weapon at a ground based target. Hit the X key and you'll fire two shots at it at once. Great when you're actually on target. Ahem.

We featured this game on these pages only a couple of months ago, but we didn't know too much about it then, except that it was some sort of combined action/flight sim.

The game still is an action/flight sim but now I've had the chance to play a preview of it I can impart some more information. The game's a from-the-cockpit affair in which you play a series of missions which are strung together into a campaign, attacking both airborne and ground targets, including buildings.

Armed with a variety of weapons you're gradually introduced to the type of enemies you'll encounter through a series of training missions (it's always handy when the baddies don't shoot back) before being thrown into combat proper. But even during the training missions one thing that's immediately impressive is the speed of the game's engine.

Admittedly you'll need a pretty high spec Amiga to play the game (I was playing on an '060 based A1200 with 10MB fast RAM and a 4x CD-ROM). *The Shadow of the 3rd Moon* relies on the Voxel engine with a 3D Terrain Imaging System designed by Black Blade, the game's developers. This creates some lovely landscape effects that not only look stunning (including some great fog and smoke effects), but move really smoothly and quickly too.

The finished game is going to feature six different campaigns comprising of 48 missions, and Black Blade are keen to point out that a lot of work has gone into making the enemy intelligent enough to provide a serious and realistic challenge.

Thankfully, you're not going to be flying solo for all the missions as you'll sometimes have a wingman at your disposal and you'll be able to designate targets for him to attack. Very handy, but for the most part it's going to be you out there dodging through the flak alone.

First impressions are very favourable, but wait until next month (hopefully) for our complete review before you go getting your cheque book out...



Kaboom! You'll not want to be this close up when you're playing the game yourself. Those towers in the background are deadly.

# Sword

SWORD ................£TBA
Release Date: .....Christmas '97
Titan Computer .0049 421 481620
email: ..www.vossnet.de/titanhb/

It's a long time since we had a platformer to get really excited about, but it looks as though the drought could now be over thanks to German publishers Titan.

*Sword* features a little chap with a machine gun struggling through eight huge levels of murderously difficult platform action, or so it says here. As you'd expect, the levels are populated by all manner of nasties, and contact with them causes the loss of life.

Fortunately, our hero is armed with a machine gun with which to dispatch said nasties. That doesn't mean the game turns into a shoot-em-up. Oh no. It's all platforms and timing puzzles here.

There's fruit to collect for points along the way and quite possibly the odd power-up (that's to be confirmed because I haven't had the chance to play the game enough yet). It apparently boasts some rather large end of level bosses, but again, I haven't got that far yet.

*Sword* is very much of the 'stand on this platform, as close to the edge as you can possibly get, and then make a huge leap to the right and you'll just land on the next platform – but get ready to jump immediately afterwards because there's this huge spike about to come out of the floor', kind of game. If you know what I mean.

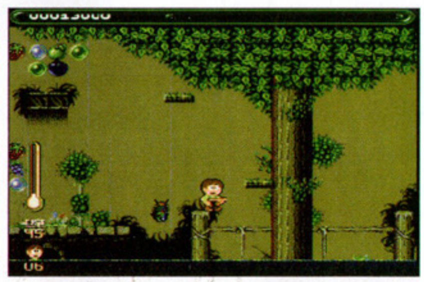
We'll be putting *Sword* through its paces next month so read the full review then.



Wait until the fish drops and then leap across the gap.



Continued overleaf ➡



Sword takes us back to the days when you had to know where the traps were if you wanted to avoid them. Ah, nostalgia eh?



The start of the game, where a couple of bees are going to appear from that hive. Every time you shoot one with your machine gun another will appear to take its place. Tricky.



Jump up onto the pole and then jump again to collect all those lovely goodies. Strictly for points, you understand.



That little red spider above our hero's head is a lot more deadly than he looks. Contact with him means not only the loss of a life, but having to restart the level right from the very beginning. Ouch!

# Myst





Now then, see one of these out your back door and you're going to want to play with it aren't you? I know I would anyway...

Myst .................£TBA
Release Date: ....Christmas '97
clickBOOM: ....+1(416)8686388
email: ..www.pxlcomputers.com

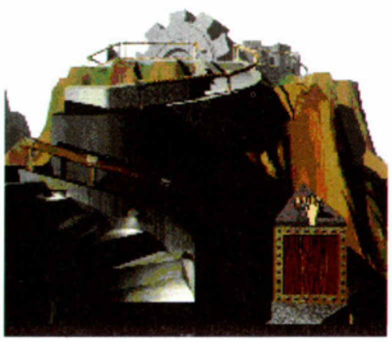


Another fine example of the tremendous graphics you'll encounter wherever you go in Myst.

One of the biggest games to hit the Amiga this year is almost complete. *Myst* was first released a few years ago on the PC and Mac and went on to become the biggest selling CD game of the time.

Canadian publishers clickBOOM, who brought us the top beat-em-up *Capital Punishment,* have been working on converting the game. From the preview disc we've seen, that work has all been worthwhile.

*Myst* is a curious game. It's an adventure with a difference – you haven't got a bloody clue what you're supposed to be doing. You start on the jetty of a small island. Next to you is a semi-submerged ship. Ahead of you is some weird cog mechanism atop a small hill. The significance of these only becomes apparent after spending a long time wandering around the island, collecting clues and interacting with key parts of the landscape, such as switches and the like.



It was precisely because of this lack of structure that *Myst* was such a success on other platforms. Gamers were sucked into the mysterious (had to drop that in somewhere, it's in my contract) world and found it hard to get out again, because discovering a new clue often opened up a whole new chapter in the story.



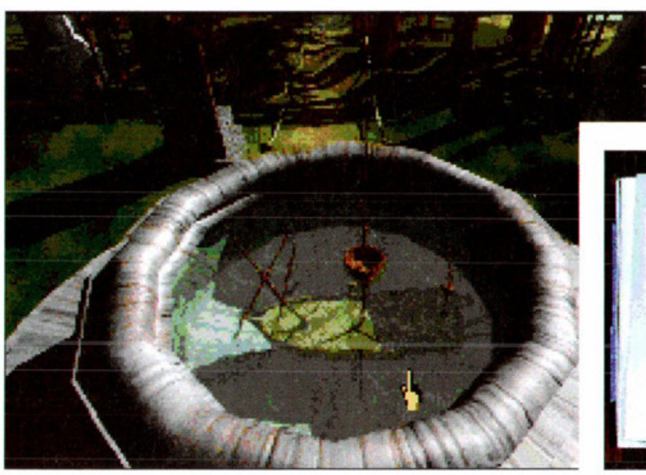
Playing it is very easy. All you have on the screen is a small hand. It points up if you can go forward, left if you can go left and right if you can go right. It turns into a gripping hand if there's something you can grab (that'll be those switches then) and that's about it. There's none of this moving the pointer all over the screen to see if words become highlighted and no having to select keywords to get anything done. It's pure simplicity.

Bear in mind that you're going to need a pretty souped-up Amiga to get the best from this (including a decent CD-ROM to start with) but first indications are that if you find yourself lost in the world of *Myst,* you'll be enjoying yourself so much that you won't want to be found for quite a while.

Expect a full review of the game either next month or the month after that. Meanwhile, these screenshots should be enough to get you salivating...



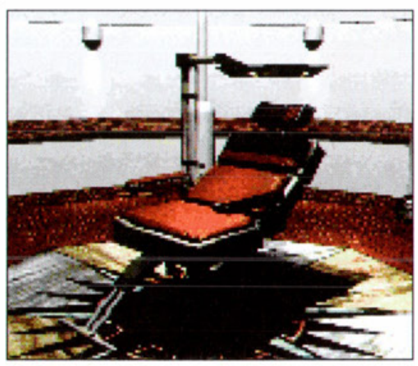
What on Earth is all that machinery doing on top of that little outcrop? Things will only become clear after many hours of adventuring.



Spooky! This looks just like a little model of the ship next to the jetty where you start the game. What on Earth is all that about then? Don't ask us...



Finding pages of this book around the island gives you video-clip clues. Very mysterious indeed.



Aaargh! This looks far too much like a dentist's chair for comfort. That console at head-level looks like it might hold a clue or two though...

# Final Odyssey

**Vulcan's latest combines ancient Greek mythology with plasma rifles. Andy Smith was confused before, and storylines like that don't help...**


That's it. Game over. Those red things spit out fireballs and they were just too much to handle...

Legend has it that Nick Veitch actually got a round in on a Friday night at Hatchetts pub once. Unfortunately, nobody's alive to substantiate this rumour so it remains a myth. Legend also has it that back in the old days (we're talking way, way back here, pre-Spice Girls days...) the ol' King of Minos used to ship a half-dozen virgins off to Crete to be fed to the half-man, half-bull beast there called the Minotaur.

The legend goes on to tell us that Nick also offered his fags round the table. Oh sorry, wrong myth. The legend goes on to tell us that a fine, upstanding young chap called Theseus thought this was a bit rum so he had a pop at the Minotaur and freed the girls (anything for a snog, eh Theseus?). That's where you come in. You are Nick Veitch and must get your wallet... sorry. Off again. No, you're Theseus and must battle your way through the Minotaur's labyrinthian maze and rescue the girls.

> "Of course, the five huge levels that make up the maze are populated by all manner of baddies..."

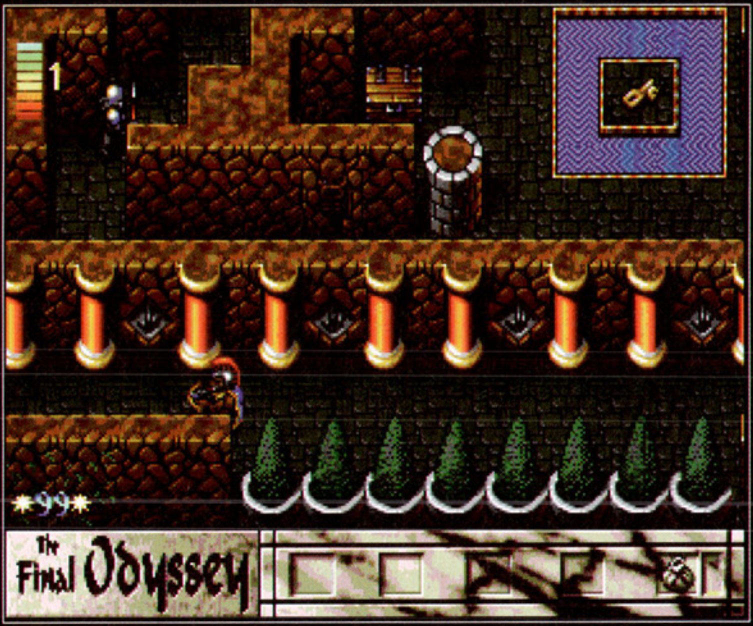

A key! Pick it up before that red blob on the right catches up, because that's a baddie.

Enough of legends and onto the game. Of course, the five huge levels that make up the maze are populated by all manner of baddies who are looking to give you a smack. Thankfully you're armed with a crossbow to start with and can pick up other weapons along the way (that's where the plasma rifle comes in you see) so the baddies aren't too much of a problem. They do have a tendency to re-appear quite a lot though, so you're never going to be left in peace for long. As well as the baddies wandering around, there are









A fine example of one of the game's puzzles. Walk up to all of the hand symbols in turn and you'll discover that one of them's hiding a secret entrance. Getting that key, though, is a lot trickier than it looks...


Teleport hell. Only one of these is going to get you out of this room. And I'm not telling you which.







**Sometimes you can't avoid taking hits (left). It's mildly annoying but not so much that the fun's spoilt. The start (right) and our hero has killed two baddies already (the craters mark where they emerged).**

also numerous traps to catch you out and some of them are wholly unfair because there's absolutely no way you can avoid them. A case in point is one chap who pops up out of the ground and fires a fireball at you. There's no way of telling that he's there until you've been hit by him a few times and remember to dodge when you go round that particular corner.

Most of the traps can be avoided by solving simple switch-pulling puzzles. Trip a switch here and a trap's avoided there, or a corridor to a new area of the maze opens. Most of the gameplay hangs around these puzzles, which is good because the majority of them are really enjoyable to solve.



Sure, you've going to get stuck at times and find yourself wandering around the same bit of maze wondering what you're supposed to be doing, but then you'll notice something you hadn't spotted before and you're off again.

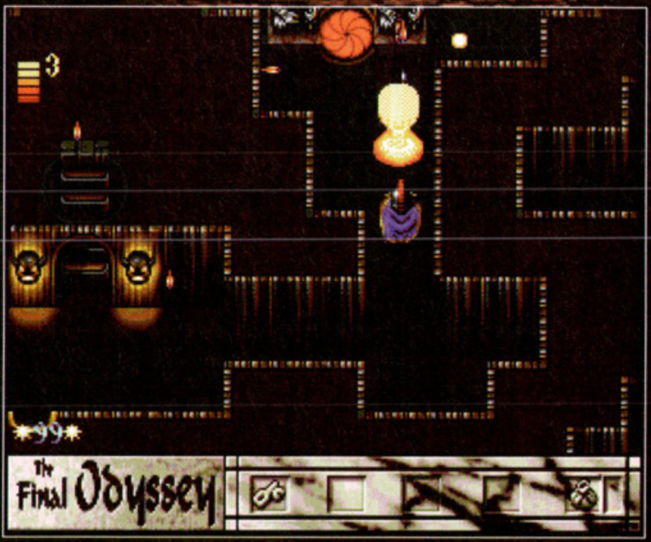
The forced 3D perspective of the game works well because everything you need to interact with is in plain view – that great big gold key on the ground is easy to spot and as the only locked door you've come across is down to the left, you know it's going to used down there (once you've worked out how to get rid of the statue that's barring your access to the door itself). The game's life structure is well thought out too.

Although you've got four lives, every contact with an enemy or trap causes a bit of life energy to disappear from your meter (you get a half-dozen or so 'bits' of life energy per life). This means you have to be careful as you wander around but it doesn't mean that one little mistake sends you all the way back to the start, though you'll still be doing that quite a few times if you're as impatient as me.

It's large, it's enjoyable but it's not a classic. The puzzles and things are sometimes bordering on the tedious and it can be a pain having to re-start from a long way back when you lose a life, although it does force you to be more careful next time, so that's only a minor gripe.

Even so, it looks and sounds great and is a quality release. Vulcan have even included a bonus two-player hi-res game in there for you to play if you manage to complete the game in one player mode, so there's a bit of extra VFM. Very nice too.

Well worth taking a good look at and definitely one to go for if you fancy a bit of maze puzzlin'. Put it this way, you're more likely to get heaps of fun from this than to get Nick Veitch to open his wallet... AF




**Find a certain switch and you get access to this underground section. That explosion in front of our hero is a baddie in his death throes. Another will appear in a few seconds.**

**"Most of the gameplay hangs around these puzzles, which is good because the majority of them are really enjoyable..."**




**Those three silver blobs on the right are coins for you to collect. Those red stains are dead baddies.**




**Standing once on this plate closes a trap somewhere else in the maze. Shooting arrows into that eye is mysterious because it's the only place in the maze where they disappear. Wonder where they come out?**




**Collect the scrolls as they impart important information – usually. Sometimes they lie...**




**PUBLISHER:** Weird Science (0116 2463800)
**PRICE:** £29.99
**VERSIONS:** A1200
**REQUIREMENTS:** 2Mb, HD, CD-ROM
**RELEASE DATE:** Out now

**GRAPHICS:** ●●●●○
Very lovely. High quality visuals throughout.

**SOUND:** ●●●○○
Very nice music and effects.

**ADDICTION:** ●●●○○
Get quite far and then get stuck. Then have a brainwave and get a bit further. Get into it and it's hard to stop.

**PLAYABILITY:** ●●●○○
Very simple and easy to play with just the occasional dirty trick thrown at you.

**OVERALL VERDICT:**
A splendid game that's well worth buying. Not quite a classic, but very close. Vulcan's Mega Series is shaping up extremely nicely indeed.

# 88%

# Blade



The line of sight feature of the game means you've wasted three turns sending your chap down this dead end. That's supposed to be fun…

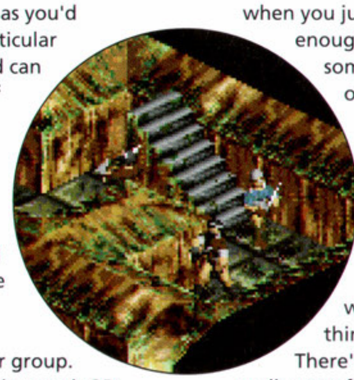
**Evil has been released through an ancient sword. We sent Andy Smith, quaking in his boots, to deal with the terror…**

Monsters? Pah! Evil wizards? Tosh! Creepy crawlies? OhmiGod! Now you're talking really scary! Thankfully, the only things to be scared of in *Blade*, Alive Mediasoft's first foray into the Amiga games market, are of the evil monster variety. And by that I don't mean girls…

> **"You're told you've spotted a monster but can you see the thing? Probably not, even if it's on the square next to you."**

This is an RPG in which you pick a bunch of four heroes from a pool of seven and then descend into the game's randomly generated dungeons. More about them later.

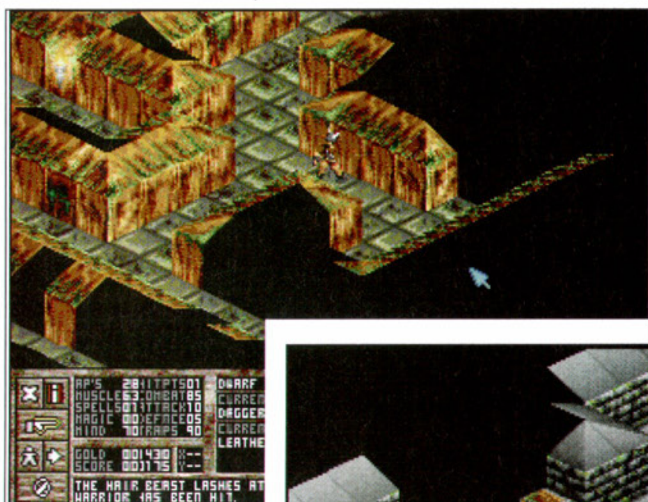
The characters, as you'd expect, all have particular abilities. The wizard can cast spells, the thief can unlock doors and the dwarf can disarm traps. If you want to get past the first level of the dungeon, you'll need to spend some time thinking carefully about the composition of your group.



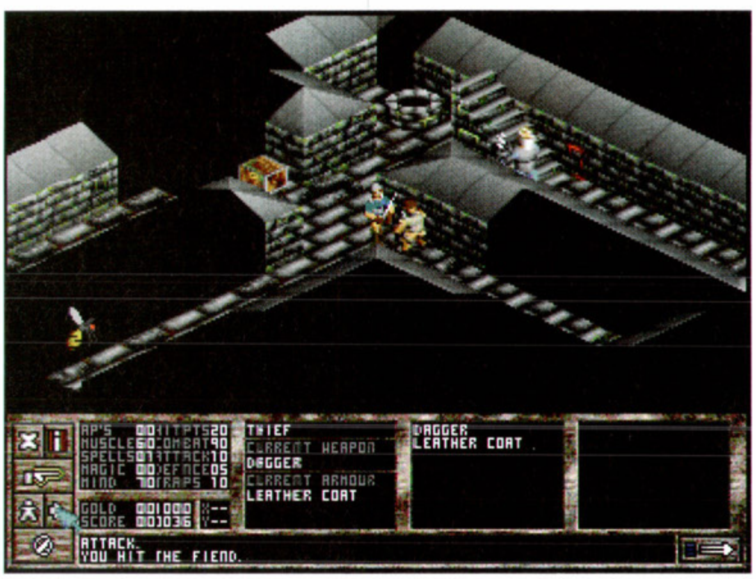
The game is an isometric 3D affair and that breeds its own problems. Once you get down into the dungeons, having spent a while above ground wandering around, mostly aimlessly, your view of the game area is dependent on a sort of line of sight system. You can't see what's round the corner until you actually go around it, and this is somewhat annoying in that you can spend a long time wandering down a corridor only to realise it's a dead-end. Still, that's all part of this adventuring lark, eh?

No, the real problem comes when you just can't see well enough because a wall or something else is obscuring your vision. This can cause serious problems because, although you've been told that 'You've discovered a hidden trap', you can't see where the bloody thing actually is! There's a high chance you'll walk one of your characters straight into the thing simply because there was no way of knowing it was there.

The actual game system is clumsy too. Each character has a set number of Action Points which they can spend each turn on walking, turning round, hitting out and so on. This is all well and good, but actually moving around is trickier than it




Your mate the Warrior is under attack from a Hair Beast. Unfortunately, dwarf here hasn't a clue where he left Warrior, so getting back in time to help could be tricky.

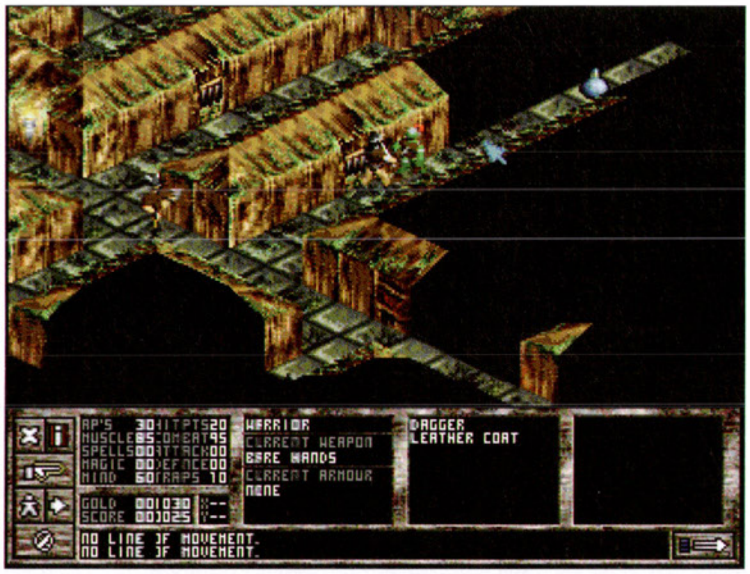



At least the thief's got a smack on the baddie. It's unfortunate that he's never gonna make it out alive…

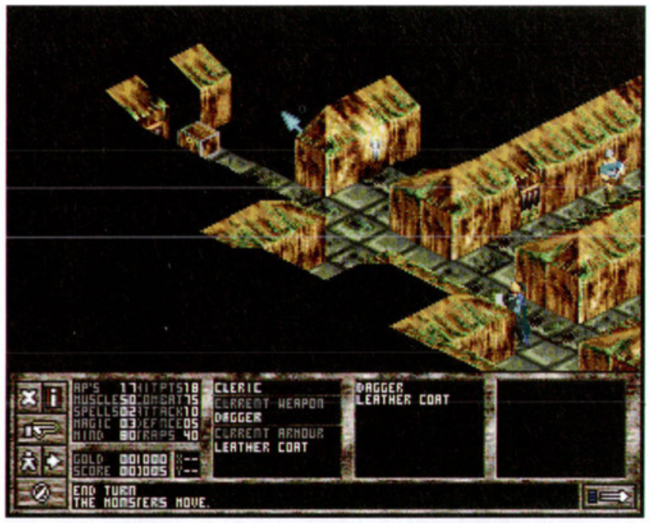




You can move here (top), but you can't go here (above) because you have no line of movement. This control system is awkward at times.




Now then, a bit of a scrap. Right click on the baddie to find out how hard he is, and if he's too tough, retire as fast as your little legs will allow.




The line of sight feature in full effect. Just what's lurking down here is anyone's guess.

needs to be. You have to pick precisely where your character is going by means of a pink rectangle which only appears when your character has a 'line of movement'.

While this isn't disastrous, it does feel rather ham-fisted. Once all the group's action points are used up, you simply hit a button and the monsters move around a bit. Then you repeat the process.

Another problem with the game is the lack of group interaction. There's very little feeling of all your characters being together.

Most of the time you'll have the characters who are good at fighting wandering around the place while those that can't fight are either ignored or left trundling around ineffectually at the back. Of course, they could always try casting spells and using their special skills. The problem here is that it takes so long to build up enough spell energy to cast a spell or use a skill that, when it goes wrong, it's all you can do to stop giving it all up there and then.

The emphasis may be on exploration, but the line of sight restrictions make it hard to keep your group together, as you'd much rather send one chap this way to see what's about, and another chap that way to see what's down there. It's not very satisfying.

Having the dungeons randomly generated means you'll never play the same game twice but it also means that some of the levels you're going to encounter will be very frustrating. You're likely to be hemmed in by traps and will have to spend literally hours wandering backwards and forwards while you try to build up enough spell energy to disable them and move on. GRRR!

The game's biggest crime is that





Queueing up to buy some equipment at the start of the game. Come back here when you've made some dosh and buy better supplies.

the enemies you encounter are so hard to see. You're told you've spotted a monster, but can you see the thing? Probably not, even if it's on the square next to you. This soon gets to be very annoying indeed.

OK, so *Blade's* had a bit of a kicking so far. It's not actually a dreadful game. It's huge and will keep you playing for a long time, especially if you put some ground work in and get used to the game's foibles. Although the control method may be unwieldy and awkward, the structure is fairly straightforward. All you have to do is kill monsters, collect gold, travel back to the surface and buy your party better weapons so they can fight the harder monsters in the deeper dungeons.

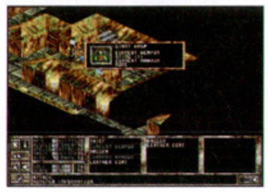
Anyone who's played an RPG before will be familiar with the system, although anyone who has an attention span of less than half an hour will soon become frustrated with the over-detailed graphics and clumsy control method.

If the graphics are over-detailed, the same cannot be said of the music and sound effects. There is no actual music as such, which really isn't such a bad thing for a game of this ilk.

However, the sound effects are limited to the odd bird tweet and quick snatch of speech. This is very uninspiring, as is *Blade* overall.



You're actually fighting a baddie here but it's a little hard to tell, isn't it? You should try playing it.



Oh, that's where it is! Luckily wasps aren't too much trouble, and one hit should see 'em off.




With only three grand in the bank and a broadsword costing ten times that, there's a lot of killin' to do!

**PUBLISHER:** Alive Mediasoft (01623 467579)
**PRICE:** £14.99
**VERSIONS:** A1200
**REQUIREMENTS:** 1Mb (A500) HD, extra Fast RAM (A1200)
**RELEASE DATE:** Out now

**GRAPHICS:** ●●○○○
Jerky, cluttered and hard to see the baddies.

**SOUND:** ●○○○○
A moody intro and that's about it. You'll soon tire of hearing "You see a monster".

**ADDICTION:** ●●○○○
It'll take a long time to get into. Those that do try really hard will spend days playing it.

**PLAYABILITY:** ●●○○○
The system's fine, but the controls are clumsy and awkward. Persistence and a forgiving nature are needed to play Blade.

**OVERALL VERDICT:**
Not dreadful, but disappointing. More could have been done to make this a lot better.

# 65%



**With Foundation almost completed, Paul Burkey talks about level design, lava, hills and hot air balloons...**

# Foundation

## WORK IN PROGRESS



The gorgeous landscapes of Foundation which introduce each level in the 40 mission Conquest.

The final stages of *Foundation* are here and it's time to work on developing the levels. The game uses a system of Conquests which contain a number of Missions.

When the game is released it will contain a 40 mission Conquest. Soon after the release of *Foundation* I will be working on new Conquests that

> "There are plenty of other things to keep the levels interesting, like stealing the enemy's gold reserves..."

simply slot into the original game and provide new level designs and a place for many new features to be revealed. At a later stage, a Conquest creation system will be released to allow the user to create and distribute Conquests of their own. This is to ensure that you have a wide range of custom game options with random landscapes, and a never-ending supply of set missions.

For this feature I will explain the techniques that were used to design the Missions for this first Conquest. The very first thing to do is design the layout of the map. This can be done with a map editor, but for speed I prefer to use a paint package to create a simple grayscale map that defines the areas of sea, together with the peaks of the hills and the slopes of the land. You can see a very simple example here (fig.1) which shows two bodies of land in a rather plain looking landscape, which is perfect for this example. When the shape is ready I run it through a conversion process that turns the dark and light areas into the distinct levels of a landscape.





Fig 1 – A simple grayscale map (top,) Fig 2 – Transformed into a fully rendered landscape with beaches and hills (above).

The conversion process also adds some random trees, rocks, flowers and other features to help me to start the level design with a rough basis for creating a natural spread of objects. When this stage is complete, I save the raw map data and pass them onto Kris at Sadeness who turns the level design into a rendered still for the game itself.

You can see how the rendering turns the previously uninteresting landscape into something a bit more special. In the next picture (fig.2) you can see the landscape from the same angle, but this time you can see the beach areas and the hills. In the large picture you can see how this simple level design can be turned into an impressive introduction of the kind that will be used for each level.

The levels will be simple at first, with only basic buildings and gameplay to introduce the strategies that are to be used later on.

I had to develop some ideas to use for mission objectives for the game. I was a bit tired of the same old "destroy the enemy" missions so some new ideas will be used.

Some of the most interesting objectives include battling your way through enemy settlements to find a prison building where 20 of your people are held hostage. Simply freeing them is not enough because they must be brought back home safely, a concept that brings back memories of *Lemmings*.

Other missions would include saving a friendly team from a deadly disease while an unfriendly teams attempt to block your protective actions.

There are plenty of other things to keep the levels interesting, like stealing the enemy's gold reserves and breaking into their buildings to steal their designs, so you can build your own highly advanced buildings.

To add to the variety I developed some new terrain types. This was to vary the visual side of the game and to introduce new areas of strategy.

On the snowy levels your people will find the cold weather causes them to lose extra energy while they are outside, so the game is played with a much more defensive, slow moving approach.

The third level type is set in a darker, gloomier zone where you will first discover the use of shipping. Ships give a huge boost to the amount of strategy involved in the game as you can you no longer defend yourself against the safety of the shoreline.

On the hot lava levels there are no lakes or oceans so water is in short supply and stealing extra supplies from the enemy is a good idea. The fact that the sea has been replaced by hot lava means that shipping is no longer an option. This is why *Foundation* contains a surprise feature in the shape of hot air balloon transport.

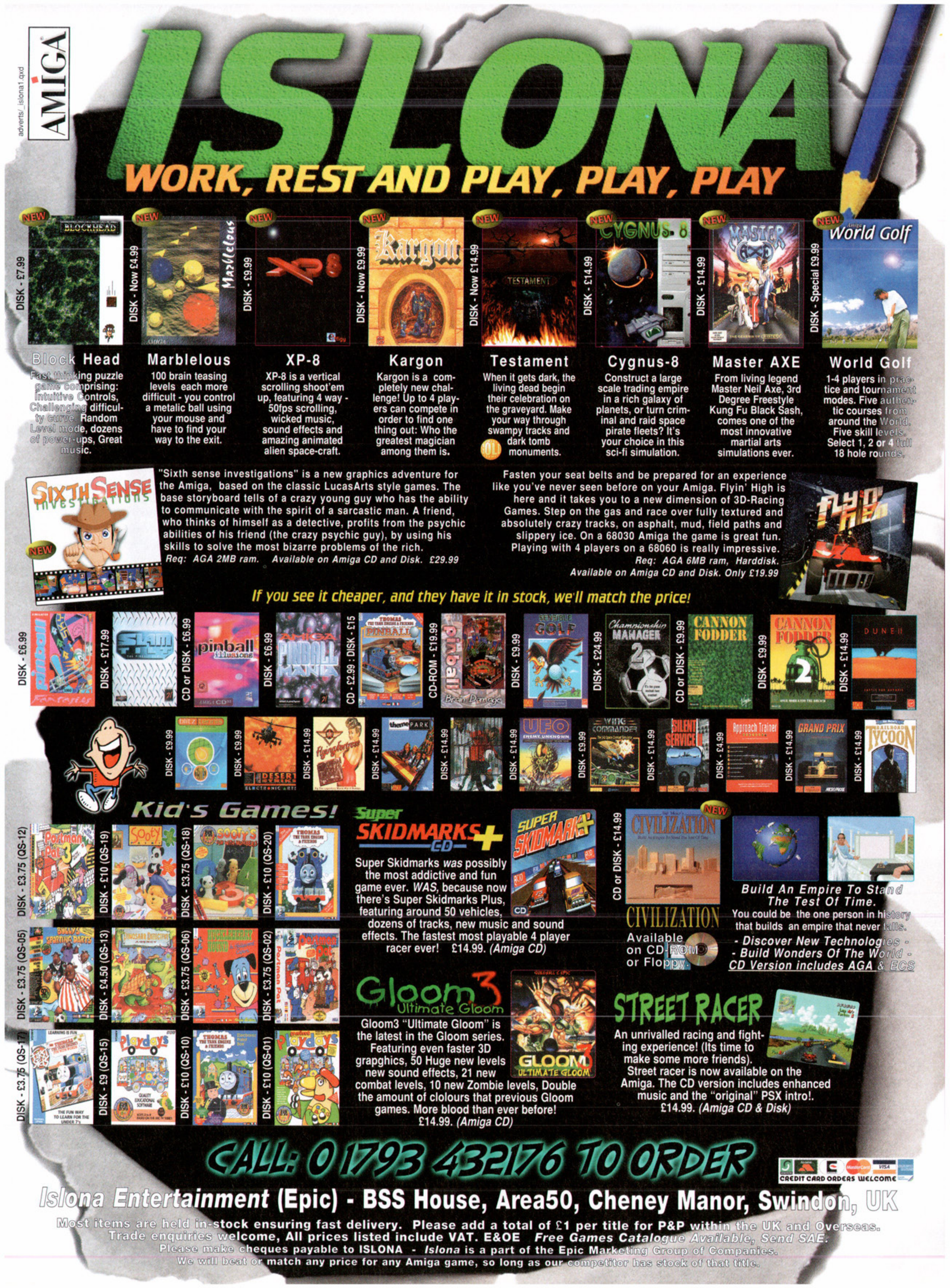
The addition of all these ideas should provide a good mix of gameplay in the 40 long levels of the first Conquest of *Foundation*. AF



Different tactics are needed for different terrains. In the snow levels, you'll need to be more cautious and defensive.

### FOUNDATION More details...

**Foundation is due for release in January 1998. SAdENESS Software are taking advance orders now so if you're interested, contact them at 13 Russell Terrace, Mundesley, Norfolk NR11 8LJ or call 01263 722169. More information can also be obtained from the Sadeness web site so point your browser at www.sadeness.demon.co.uk/foundation.html or email rich@sadeness.demon.co.uk**


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**They're quirky. Quite often then don't actually work. Sometimes they're appalling. Sometimes they're really rather good and they're all made by you. Andy Smith checks them out.They are, of course, the...**

# Reader Games

ON THIS MONTH'S CD

**AFCD22:-ReaderStuff-/-ReaderGames-**

And we love 'em no matter how good, bad or ugly they are. The idea behind these next few pages is to encourage the creativity of our readers by giving them the chance to show the world the games they can create. Every month we rummage through our big box of Reader Games and pick out the ones that we feel could benefit from our years of gaming experience. That doesn't mean we idly slag off the really crap ones (though the temptation to do just that is too much, even for us) we merely point out where the programmer should be directing his efforts to make the game even better.

And the readers' incentive? Well, apart from having your game appear in the hallowed pages of *Amiga Format* and apart from having your game on our cover CD so that other gamers can play with your creation, we also award the author of the month's Star Game a whopping £50. That should buy a few beers or sherbet fountains or whatever.

If you've always had a great idea for a game but haven't got around to actually coding the thing, then now's the time to do it. And remember to fill out the disclaimer form when you pop your game into the envelope alongside your photograph. Got all that? Great. Onto this month's goody bag...

## GAME: Lion Attack AUTHOR: Tim Sycamore LANGUAGE: Blitz Basic

Quite why Tim decided to call his first submission to Reader Games *Lion Attack* is a mystery as the game features no lions at all. It's actually a clever mix of a couple of very old games – *Asteroids* and *Tempest*.

The *Asteroids* connection is the most obvious in that the player controls a small ball in the centre of the screen and must destroy the floating beach balls that fly around by shooting them. Hit a beach ball and it breaks up into two smaller beach balls which then need shooting themselves.




Unlike *Asteroids*, the player's 'base' stays in the middle of the screen and only the turret moves (this is the bit that's ever so slightly like *Tempest*). Shifting the mouse left and right causes the turret to skim around the outside of the player's ball and so the game's a frantic kind of turret-moving affair as the player attempts to stop any of the moving beach balls colliding with his main ball.

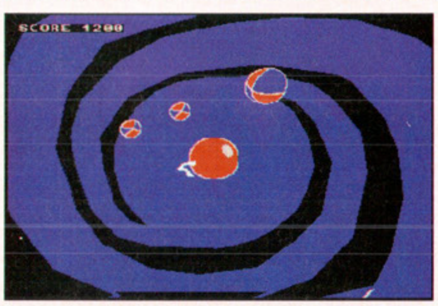
But collisions aren't a disaster. Every time a ball hits the player's base it becomes absorbed and the player's base gets a little bigger (if a big beach ball manages to collide, it increases the player's ball size quite a bit, but if a small beach ball hits it only makes it grow a tiny amount). Several balls can become absorbed before the player's ball becomes too big and it bursts, heralding Game Over.

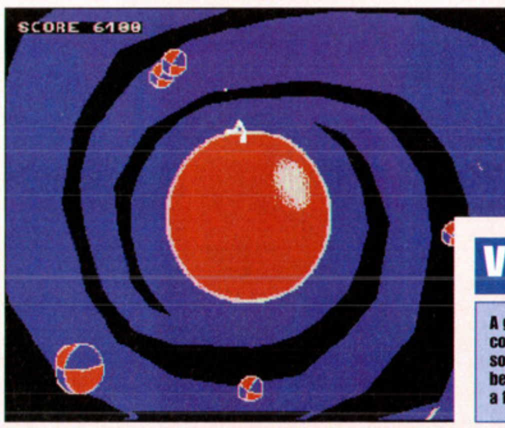
A good spell of shooting allows the player to reduce the size of his ball so you can even bring things back from the brink if you're good enough. As for the point of the game, well, it's just to score as many points as you can.

Tim's even included a Medium and Hard mode where your main ball starts off larger than normal (again, a good bout of shooting will reduce the size of the ball).

Overall, *Lion Attack* is alright. The graphic style is a refreshing change and the only thing it really needs is a keyboard option.

This might be difficult to implement because of the speed required, as you really need to be able to whizz around the ball to get all the beach balls heading your way. It would still be useful, though, as the mouse control takes quite a while to get used to.




It's a lovely graphic style isn't it? Your ball's quite small when you start out (above) but soon becomes inflated when it's absorbed a few of those beach balls flying around (right).

### VERDICT:

A good looking game that's fun to play. The mouse control takes a while to get used to and the addition of something else to break up the monotony of all those beach balls would have been welcome. As it stands, it's a fine diversion for a few minutes.

## GAME: Playball AUTHOR: Gerald Brook LANGUAGE: Amos



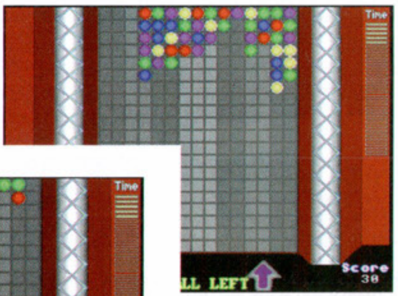


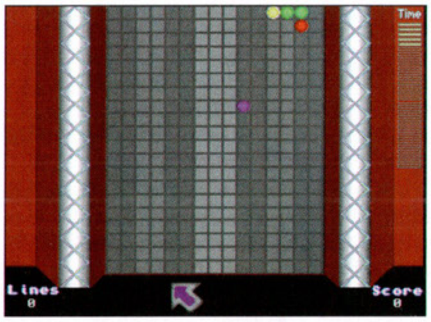

Here's an excellent little puzzler for you. It's a sorta, kinda, *Tetris*-a-like in that the object of the game is to line three coloured balls up so that they disappear.

Except it's a lot harder than that because the balls are fired from the bottom of the screen by an angled arrow. The balls shoot up the screen and bounce off the walls before coming to a rest at the top. Your only real chance of lining three balls up is to fire a ball, move the arrow at the bottom of the screen a bit (it sort of moves in small steps) and then fire another one.

If you've judged the angles correctly you'll find the second ball bounces up and lands next to the first. Except that you probably didn't want it to because it's the wrong colour. There are five different coloured balls that alternate randomly, so when you're stuck with a ball of a different colour, deciding where to put it can be real fun.

Thankfully Gerald's decided to award the player bonuses every now and again. These include a bonus that allows you to see the path of the next ball that's going to be fired (so you can move the arrow around until the ball's going to land exactly where you want it to) and a bonus that makes your arrow point straight up, so you know it's going to fire the ball directly onto whatever ball is at the top of that column.




This is a great game and provides a real challenge. Even the music that accompanies the action is pleasant. Well worth this month's Star Prize.

That angled arrow makes life very tricky – you'll be glad to get a bonus that straightens it out…

### VERDICT:

An excellent little puzzler that should keep you playing for ages. It won't appeal to everyone, especially those that don't particularly like thinking about their games, but I reckon it's a cracker.

## GAME: World in Peril AUTHOR: Philip Ord LANGUAGE: Amos Pro

And just to prove that not every entry to Reader Games is coded by a 14 year old we have Mr Ord's *World In Peril*. Now then, Mr Ord is well into his fifties and is a fine example of the spirit that exists amongst Amiga owners in that he's coded this game purely because he gets a lot of enjoyment from coding something through to completion. And he's also come up with a decent game.

It's not an original concept, merely a *Space Invaders*/*Galaxians* type shoot-em-up. Two alien motherships sit, indestructible, at the top of the screen and pour out thousands of little alien ships that hurtle to the ground dropping bombs in an attempt to blow you up.

You sit at the bottom of the screen, very destructible, and attempt to shoot as many of the descending aliens as you can. There are power-ups to collect in the form of diamond shaped craft that give you extra firepower if you manage to shoot them, and there are sneaky Christmas tree decoration Death Bombs that kill you if they manage to escape off the bottom of the screen. Simple, easy and fun. But only up to a point.

For a start there's just too much going on. Philip mate, turn down the speed and reduce the number of aliens attacking at once, eh? Because everything's running at 100mph you end up just whizzing your tank thing from side to side with the firebutton held down and just hope to kill the aliens as there's not enough time to pick out targets.

And as for the Christmas tree things, well it's far too easy not to notice them and blast away merrily just to find yourself exploding for no apparent reason. Having said all of that, this is still a laugh.



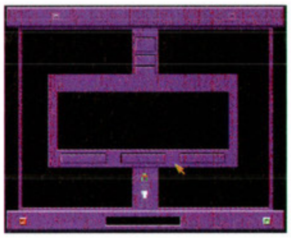

Just look at all that! That Christmas tree thing is about to slip off the screen and come back and destroy you. It's a mean trick. Stop it.

### VERDICT:

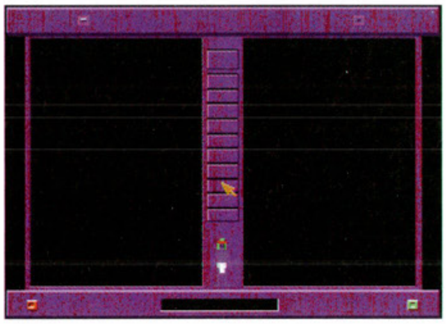
Not a classic game but one that should keep you busy for a few minutes. The music's especially good although the sound fx are crap. Less speed and less aliens would have made it more addictive.

## GAME: NumberX AUTHOR: Ermanno Manzoni LANGUAGE: Amos

I've only included this one for a bit of a laugh. It's supposed to be a *Mastermind* clone, you know the old board game that had a picture of a bearded bloke who was clearly not Magnus Magnusson on the cover while some lithe Chinese bird hovered behind him? Yeah, you do. It's the one where you had to pick four different coloured pegs and hide them behind a little shield and then your mate (or more usually your sister) had to guess which pegs you'd chosen. White pegs were then awarded for correct colour, wrong hole and black pegs for right colour, right hole. When all the pegs had been correctly guessed it was game over.



That's what this game was supposed to be like. The computer thinks up four coloured pegs and then you try and guess. Except it isn't working. The pegs are supposed to be picked from the middle of screen, except they're erm, all purple. Click on four purple colours and the computer then tells you right colour, wrong hole by means of either red or green pegs.



It would be nice if it worked. Probably. Still, I've included it because you can have a go and I'm sure the really clever ones out there will be able to work out what they should have been doing.

He's flippin' mad this bloke! What's that big thing for then (far left)? And what are all these purple drawers then eh? EH? If you're mad and want your game ridiculed then don't hesitate to send it in!

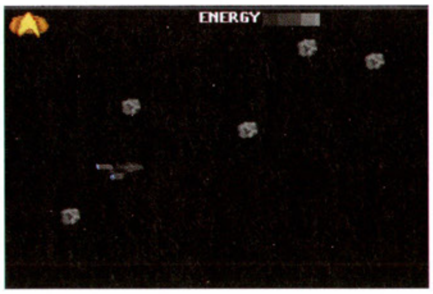
### VERDICT:

Well, it doesn't work. Give it a go for a giggle anyway.

## GAME: Startreker AUTHOR: Andrew Brook LANGUAGE: Amos

Andrew's very unlucky not to win this month's Star Prize for his game *Startreker*. I liked it because it has a very silly but unique feature that I'll come back to. But first the game itself.

Erm, there isn't much to it actually. All you have to do is steer your Starship Enterprise (you knew from the title didn't you?) up and down and occasionally backwards and forwards in an attempt to avoid the constant stream of asteroids that come hammering towards you from the right of the screen.

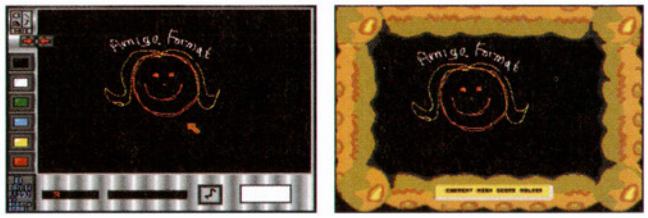



The Enterprise ducks another deadly asteroid. This isn't exactly the most thrilling of games, but at least it works, eh?

You've got a small amount of energy that you can use (with a press of the firebutton) to get you out of trouble double-quick but there's not much of it (you have to collide with purple asteroids in order to get more) and that's about all there is to the game.

Continue in this fashion until you hit an asteroid and die. Then the best part of the game comes in. Should you survive long enough to beat the high score you not only get to enter your name but you get to draw a little high score picture! No, really! The game dumps you in the middle of a paint package where you can let loose with the paint! And to top it all, the game then saves your picture to disk.

What an excellent little idea – just the sort of incentive you need to actually fire the thing up again and have another go just so you can draw yourself another little picture. If you don't want to actually play the game you can just opt to look at the picture (which Andrew even frames for you). I like this idea a lot.




And here's my picture of the lovely, and missed, ex-art girlie Cathy. Still, my piccy will remind me of her.

It doesn't add anything to the gameplay (which could do with some additions, maybe some guns?) but it's such a neat idea that I couldn't stop playing with the thing and I'm not even any good at drawing (as you can see from the screenshots).

### VERDICT:

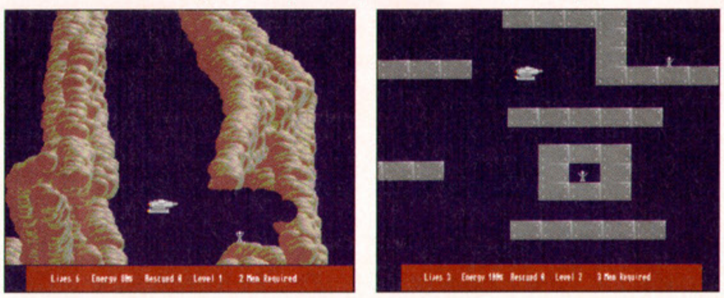
Well, there's not much to the game but what is there is fine. A few extra features would have made it more fun to play, but the ability to draw your own high score picture is absolutely inspired. Excellent stuff Andrew.

## GAME: Survivor AUTHOR: Steve Bailey LANGUAGE: Amos Pro

Finishing us off this month is a great game from a previous Reader Games author, Steve Bailey who you might remember wrote the game *Ants* (*AF98*) which I described as 'A fine effort'. *Survivor* here is even better.

It's a kinda *Thrust* meets *Scramble* with a smidgen of *Worms* thrown in sort of game.

You're controlling a small spaceship that's being constantly subjected to heavy gravity. Scattered around each level are several small men that you're asked to rescue. This involves carefully manipulating your ship so that it lands on the man but doesn't touch any of the landscape, which can be very tricky when you're constantly being pulled downwards and the landscape allows for very little error.



If you can't get through a gap to rescue someone, blow holes in the landscape. Life becomes so much more enjoyable.

And if that wasn't hard enough there are enemy mines that come after you and have to be avoided. So that's the *Thrust* meets *Scramble* bit. The *Worms* bit is where you can blow holes in the landscape with your forward and down firing missiles (where going round a ledge might have proved very tricky, you can fire down along it and then descend through the hole instead). Watch out though, because if you get your ship caught in the blast it'll explode too.

This is tough stuff but it's fun to play. There are only six levels but you'll find life gets very difficult after the second, so it should take a while to finish all six. There is no music but the effects are fine and what graphics there are appear to be more functional than decorative. A better than fine effort, so keep 'em coming Steve.

### VERDICT:

A simple and very enjoyable game that's challenging enough to keep even the most dexterous players on the edge of their seat.

## MORE OF THE SAME PLEASE!

When you're sending in your submissions make sure you also give us:
1. An address where you can be contacted.
2. Details of the language used to create the game.
3. A recent photo of yourself.

The address to send your stuff into is:
Reader Games • Amiga Format
30 Monmouth St. • Bath • BA1 2BW

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# GameBusters

**We're all still in a good-will-to-all-men kind of mood here on AF. Especially Andy Smith (because he's still drunk) who's decided this would be the perfect time of year for a Helping Hands Special. And why not…**




They're talking rubbish of course. I'm merely 'merry' or possibly 'in good cheer'. I haven't had a, erm, what am I doing? Oh yes, Helping Hands. Onwarsh then…

## PREMIER MANAGER 3

**Dear Helping Hands**

I own *Premier Manager 2* and 3 and I know the codes to use on the phone for *PM2*, but when it comes to *PM3* a message comes up saying 'So you think I would use the same cheats again? Well you're sadly mistaken!' but then at the bottom it says 'Or are you?'. Does anyone know of any phone cheats for *PM3*?

***Andrew Maclachlan***
***Wokingham***



*Aha! Well, we are very happy to announce that if you dial 400040 your players will have a higher fitness rating and better morale. Even better, if you dial 343343 you'll receive some extra dosh. Cool or what?*




"And the ball's in the keeper's safe hands." The Killer Penguins are on the back foot here.

## UNIVERSE

**Dear Amiga Format,**

**I am currently playing a game called *Universe* by Core Design. My problem is when I get Boris to meet Silphinaa, the robot comes in and kills her and Boris needs to get upstairs without unlocking the keypad to find the right combination. Can you please tell me the numbers and send the answer to my home address?**

***Barry Sheehan***
***Loughborough***




Subversive! I'll give him subversive in a minute, right round the ear. Submissive, yes. But never subversive. Well, only a bit.

***Well, no, Barry. We have a strict office policy of not getting into personal correspondence (unless you're a particularly attractive 22-year-old who is single, smokes, drinks and plays a lot of pool and doesn't mind getting up until around 10.30am, and lives in Bath. And owns a kebab shop and taxi service combined). I will, however, tell you what you should be doing in Universe within the pages of Amiga Format.***

***Talk with Silphinaa until she will allow you inside. Enter and say that you don't know where you are. Read the rest of the conversation until she tells you to go upstairs. Attack the keypad with the bent metal bar, open the wardrobe and wear the suit that's inside. Use "arm computer" on the console over the bed... but, hang on, that's your lot.***

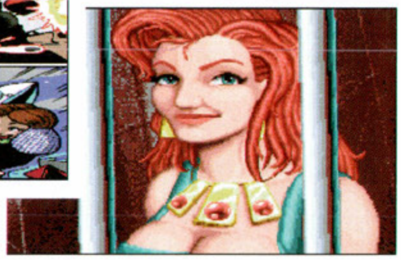
# FLIGHT OF THE AMAZON QUEEN

**Dear Sirs,**

I'm stuck in the *Flight of the Amazon Queen* on the bit where you have to assemble all the bones. Can you please help?

***Mr White***
***Grimsby***



**The fabulous cartoon interludes found in Flight of the Amazon Queen are amusing. (Right) Don't trust her, she looks well dodgy to me.**

*Certainly can, Mr White. Walk to the temple, go through any door and pick up all the bodies. Some should produce bones so pick them up as well. Do this in the next room too. When you find the dinorat, give it the cheese bits. Go to the entrance room and put all the bones, apart from the arm bone, in their appropriate holes.*

*Use the arm bone on the socket and put a coin in the slot. Move the arm bone and walk through the door. After you get rid of the ghost, go to the door on the right.*

# ROBOCOP III




**Dear All,**

**Have you any cheats for this game? I'm still playing it every now and again but can't get very far.**

***Jane Meadows***
***Cirencester***




**Who was the bloke Robocop's son liked? T.J. Laser? Yes, that was it. Looks like it's the end of the line for the men in black here.**

***Certainly Jane. During the jet-pack round, hold the right shift key and type 'My Friend Bill' to activate the cheat mode (a limerick appears if you've done it right). Alternatively, hold down either shift key and type 'The Diddy Men' and then press ESC to skip levels.***



# SYNDICATE

**Dear *Amiga Format*,**

I remember hearing that if you typed certain things in as your company name in *Syndicate*, you could gain access to extra levels and stuff. Please tell me if this is true because my little brother's been playing it lately.

***Jeff Heath***
***Lowestoft***

*I don't know about any extra levels Jeff, but there are a few things you can do if you type in the following names:*

***ROB A BANK** ........................ Gives you 1,000,000 credits*
***COPER TEAM** .................... Gives you more cash and weapons*
***WATCH THE CLOCK** ........................... Makes time fly by*
***MARKS TEAM** ....................... Gives you top quality agents*
***OWN THEM** .......................... Gives you all the countries*
***NUK THEM** ................ Gives you the chance to start anywhere.*

# CIVILISATION

**Dear *Amiga Format*,**

**I recently bought some classic re-releases (the originals got hidden away somewhere never to re-surface) and wondered if you've got any cheats for *Civ*, *Colonization* and *F-15 Strike Eagle II*? Any help would be appreciated.**

***Paul Glass***
***London***

***Always glad to help, Paul. In Civ, press ALT-R to randomly change the computer leader personalities. When you're building things with settlers, give the settler a command, such as 'r' for road building, then select the settler again with the mouse. Repeat this until the road is complete. This works with all settler commands such as 'm' to build mines and it enables you to build things in a single turn.***




**See! Hamburg's a silly name for a town. Oh no, that's the game below. Hamburg's a great name for a town. Just get it building settlers as soon as you can, eh?**

# COLONIZATION

***Here's a handy cheat for you Paul. When starting a new colony, name it Charlotte. This will allow you to see all the maps instantly, all the other European ports, check the stats of other countries and get you $50,000 into the bargain. Also, when you access another country's European ports you can spend all their money, letting you recruit loads and loads of people! If you fancy more money, simply re-name the colony and start another one. Call that one Charlotte and you'll get another $50,000.***




**He won't be laughing when I've stolen his land, his culture, his money, his history, his way of life and everything else. Oh yes, never underestimate the power of the tax department!**

# F-15 STRIKE EAGLE II



***Sorry Paul, the only tip we've got for this is that if you press CTRL, ALT and R simultaneously during play, you'll be able to restock your ammunition. Still, that should be good news if you're particularly trigger-happy.***

**Off you go, lil' ol' missile friend. Go say hello to that nice MiG 17 just up ahead. And if you miss, I'll simply re-arm thanks to this timely cheat!**

continued overleaf ➡

# HUMANS – THE JURASSIC LEVELS

**Dear Amiga Format,**

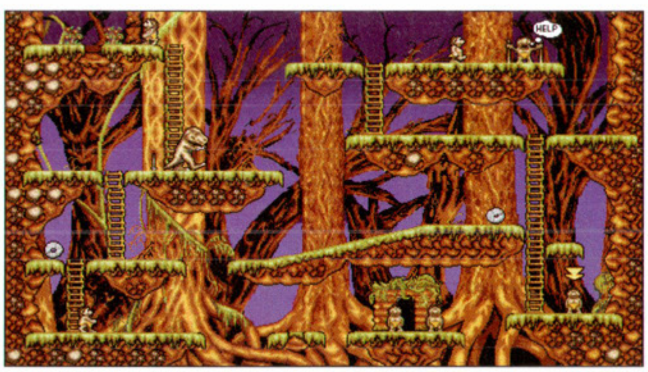
Just for a laugh, why don't you print a list of all the levels? Oh, and it would help me get through the game too...

***Pete Wilson***
***Dover***



*Alright then Pete, but only for a laugh understand. You won't go using them now, will you?*

| Level | Code | Level | Code |
|---|---|---|---|
| 01 | WHEELS OF FIRE | 40 | SWF |
| 02 | ROLLING DOWN | 41 | THAT'S NOT IN! |
| 03 | THE ROAD | 42 | CALORIES |
| 04 | SKIVE OFF | 43 | MEANS NOTHING |
| 05 | DAY TRIP | 44 | BODY ACHE |
| 06 | GIRAFFES | 45 | JESUS JONES |
| 07 | MAKE UP | 46 | BIGBOYSDOCRY |
| 08 | FLYING AVENGER | 47 | MOTORBIKING |
| 09 | WIBBLE | 48 | BUTCH AS |
| 10 | BILL AND BEN | 49 | SULKY |
| 11 | SPITFIRE | 50 | SINGLES |
| 12 | DESERT ANGEL | 51 | IWANNABEBORED |
| 13 | NOONEKNOWSUS | 52 | LET OFF STEAM |
| 14 | APRIL 1993 | 53 | TOP BODIES |
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| 16 | KATE | 55 | CASTLE HOWARD |
| 17 | SNESSY | 56 | REBEL LEADERS |
| 18 | OLDHAM8BORO1 | 57 | REALLY SMART |
| 19 | FROG AND TOAD | 58 | HANSPLAYSWITH |
| 20 | DANSPAM | 59 | 1976 PORT |
| 21 | SAVERRANCER | 60 | SCREAMINGTREES |
| 22 | 19ACOPY | 61 | ROCK A LITTLE |
| 23 | M LOVE BONE | 62 | MANCHESTER |
| 24 | ASYLUM | 63 | CROWNOFTHORNS |
| 25 | WINOPUSKA | 64 | KRISTI |
| 26 | ALICEINCHAINS | 65 | LOSERS |
| 27 | ABSOLUTELY | 66 | BROKE AGAIN |
| 28 | FABULOUS | 67 | ITS NOT MINE |
| 29 | ED AND PATS | 68 | PATHETIC CHAPS |
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| 31 | YEAH CHEERS | 70 | CRACKERMAN |
| 32 | THANKS A LOT | 71 | NOT GUILTY |
| 33 | MONKEYS | 72 | SPOOKY HOUSE |
| 34 | I'M CNACKED | 73 | BATTLESCARS |
| 35 | NOODLES | 74 | WEARENOTHERE |
| 36 | AL PACINO | 75 | CHRISTMASEVE |
| 37 | DEEJI | 76 | KEELOVER |
| 38 | MAFIA | 77 | WHAT A NIGHT |
| 39 | ROADHOUSE | 78 | DOMINATION |
| | | 79 | BONUSPLEASE |




**See, you can now go right through the whole game without having to solve a single puzzle. But that makes the game rather pointless, doesn't it? Oh well, I'm only here to serve.**

# MORTAL KOMBAT

**Dear All,**

**I've just got this off a mate and was wondering if there had been any tips printed in back issues of *Amiga Format*? If so, can you tell me which issues as I'm getting a bit frustrated playing it.**

***Steve Mills***
***Wrexham***




***We've done loads of tips in the past Steve, and most of the issues are now well out of print, so here's a cheat to help you out.***




**They won't know what's hit them as soon as the cheat mode's active. Chalk another one up for cheats!**

***Select the game level as normal, but only use three credits. Play as Rayden and lose on your first match. When you're asked to choose your fighter again, choose whoever you wish to be and you should have unlimited credits. As a bonus, if you press UP, LEFT then FIRE on the Continue screen, it will reset your time. Type in all the letters from A to U three times to be presented with a cheat mode where you can turn off Rayden's body electricity, fight reptile and lots of other stuff.***

# JURASSIC PARK

**Dear Amiga Format,**

Do you have any cheats for the game *Jurassic Park?* I know it's old but I still like playing it.

***Sarah Taylor***
***Hull***

*Spooky that the word Jurassic should appear twice in this month's Helping Hands, eh? Well, actually it's not, because this query came in a couple of month's ago but lack of space has... no, don't lie, it's because the letter was lost in the recent office move and has only just re-surfaced. I don't know what machine you're playing on Sarah, but here are the level codes for the A1200 version and A500 version:*

| | |
|---|---|
| **A1200** | **B584935A** |
| | **E54C67AA** |
| | **D5F4AB62** |
| | **95B48B42** |
| | **85A4834A** |
| | **85B48B42** |
| | **F54C6FAA** |
| | **C57C77B2** |
| | **D56C7FBA** |
| | **A5149F5A** |
| **A500** | **8EB75C3D** |
| | **DE5FB8C5** |
| | **EEE7740D** |
| | **BEB75C25** |
| | **AEA7542D** |
| | **BEA7542D** |
| | **CE5FB0C5** |
| | **FE6FA8DD** |
| | **EE77780D** |
| | **9E074035** |



**Don't go in there. It's full of dinosaurs who are running around trying to eat people. You're going to go in anyway? Suit yourself then...**

# THEME PARK

**Dear *Amiga Format*,**

I've been following the various letters you've been getting about the cheat mode for *Theme Park* and wondered if you had any other tips that didn't involve typing your name in?

***Andy Collins***
***London***






**Build huge parks, have very happy punters and make tons of money. All thanks to us enabling you to cheat. Good, eh?**

*Yes Andy, it's all been getting a little silly hasn't it? Here's some words of wisdom that appeared a while ago. Maybe they'll help everyone along.*

***1. Improving your rides.***
*If you put your ride-improvement VAT up to full (9999) for about two or three months and then put it back to zero, you'll find that your rides keep on improving for about another six months without you having to pay anything. The cheat stops if you go to the Sandbox level, but when your rides stop improving you can reactivate the cheat by doing the same thing again.*

***2. Even better, why not get EVERY ride for FREE!***
*Step one: Make enough money for lots of research.*
*Step two: Go to the Sim or Full game option if you are on Sandbox level.*
*Step three: Put the Shop research up to full (9999).*
*Step four: Wait. If you find yourself short of cash then put the Shop research down to zero. Always keep the research at either 9999 or 0. Nothing in-between.*
*Step five: When you eventually get the arcades, don't turn off the Shop research, wait for one more month.*
*Step six: After you have waited, go to the Rides screen and you should find that you have all the rides!*

***3. Getting EVERY shop for FREE!***
*Follow the above procedure, but instead of researching shops, research Improving Your Staff.*

***4. The Rubber Tubing trick.***
*If you want a Rubber Tubing ride but haven't got the cash for a big one then just open a small one. Then you can extend it to be as big as you like and you won't get charged any extra for it. Combined with this is a little tip to keep all your punters happy. At the park entrance, use one-way arrows to guide the people to a long rubber-tubing ride. If you disconnect the ride just before the end, the people go backwards through the ride circuit, doubling the length of their experience. This makes them leave feeling very happy indeed!*

# STAR TREK: 25th ANNIVERSARY

**Dear *Amiga Format*,**

**I'm completely stuck on the second episode of this game called *Hijack*. All I seem to be able to do is fix the transporter and I can't even do that. Can you help please?**

***Barry Simpson***
***Bradford***




**Here, didn't we have this last month too? I thought so. Oh, it's a different tip – that's all right then. Carry on Mr Sulu…**

***Use the Med Tricorder on the Transporter Chief in the transporter room. Take the transmogrifier. Talk to the Transporter Chief again and use Spock on the transporter controls. Exit east door.***

***In the corridor, use the Sci Tricorder on the north door, then on the junk on the right side of the corridor. Get the junk. Go through the east door.***

***You will now find yourself in the brig. Use the Sci Tricorder on the brig controls, then use Spock on the wires below the brig controls. Use Spock again on the brig controls and take the wires below. Go through the west door.***

***Back in the corridor, use the stun or kill phaser on the phaser welder. Use the phaser welder on the force field (left of door and a little above the ground). Exit south.***

***You're now back in the transporter room. Use the phaser welder on the metal bits to make a transmogrifier bit which you should then use on the transmogrifier. Use the transmogrifier with the bit on the transporter controls. Now use the wire from the brig controls on the transporter controls. Get Spock to use the transporter controls to be beamed to the Masada's bridge. Talk to Elasi Cereth, and give response one. Finally, beam back to the USS Enterprise to complete the episode.***

# TIN TOY

**Dear Amiga Format,**

I'm really not very good at this at all. Have you got any cheats please?

***Cathy McKinnon, ex-art assistant***
***Sitting just behind you all now***

*Our Cath, how could we refuse you? Simply press P to pause the game and press the left mouse button and HELP at the same time for infinite everything.*

*Then you can press F1-F5 to skip through the levels or 1-4 to skip to different parts of the same level. Now get back to work…*





**Sadly, Tin Toy is just one of many games that Cathy is no good at…**

# LEND A HAND




**If you're having trouble with a particular game or have a solution to a question in the magazine, don't keep it to yourself – write it down or send it in on a disk and we'll do our best to print it.**
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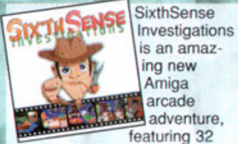
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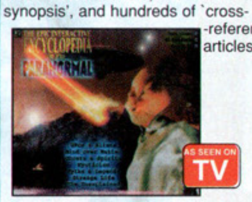
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# PD Select

**Dave Cusick** paints, dogfights, battles aliens and plays on the fruit machine… and still finds time to look at the best PD games around.

## CANE DEMO

| | |
|---|---|
| By: | NCGamez |
| Ware: | Share |
| PD Library: | OnLine PD |
| No of disks: | 1 |
| Price: | 1.50 + 75p P&P |

Years ago there was a stunningly playable 8-bit computer game called *Thrust*. Versions of that masterpiece were available for just about every home system, and as a youngster I remember spending hours on end hunched over my Acorn Electron, hooked up to a small, early '70s black-and-white TV set, thrusting my way around the galaxy.

Later, when I first made the jump from 8-bit to 16-bit computing, one of the first games I played on my new Atari ST was *Oids*, a title which owed more than a little to *Thrust*.

In *Thrust* and its many imitators, the player controlled a little triangular ship which had to be guided around a cave complex. Along the way the player had to contend with limpet guns attached to cave walls, as well as the effects of gravity, while collecting pods which would swing around awkwardly underneath the ship.

*CANE* stands for *Cargo And Nothing Else*, and in this *Thrust* clone you must collect people and parcels from several alien worlds. This being a cut-down, shareware evaluation version of the game, you can only explore cave complexes inside Mars and the mysterious Alien Lair. The full game, which costs six quid, promises extra levels, and may also include a level designer and a two player option.

Additions to the classic *Thrust* gameplay include wall-mounted magnets which severely effect the flight of your ship and bombs which you can use to take them out with. Some levels also feature water which can cause even more problems.

Although *CANE* isn't in the least bit original, features some terrible "music" and is perhaps a little less responsive than I'd like, it is still quite an enjoyable romp which offers something for action freaks and puzzle game fans alike.






Carry the little fella to safety (below) – or drop him in the water, hit him off the walls and squash him. As we did. We're not too good at this game…

## CLASS HARD DRIVE UTILS 26

| | |
|---|---|
| By: | Various |
| Ware: | Various |
| PD Library: | Classic Amiga Software |
| No of disks: | 1 |
| Price: | £1.00 + 75p P&P |

The highlight of this assortment of utilities is *HotBar*, a handy program which pops up an icon bar at the bottom of your Workbench screen whenever the mouse is moved down there. You can specify which program icons *HotBar* displays by editing a small configuration file. There are scores of similar programs in the public domain, but *HotBar* is particularly useful for people who don't want large portions of their Workbench permanently covered with icons but still want quick access to their favourite utilities.

Other useful inclusions: *Personal Icon 1.0* allows you to edit Workbench icons from within *Personal Paint v6.3* or greater, while preserving any Tooltype settings; *LHA2LZX*, which unsurprisingly repacks LHA files using the more efficient LZX archiving system; *DMS 2*, the diskmashing archive which was once so popular; and Frank Bunton's excellent *Amigaguide* guide to, erm, writing Amigaguides.

*ShowConfig* is designed to display the current system configuration in a ReqTools requester, although all it succeeded in doing on my machine was crashing nastily. There's also *Joytest*, a simple but well presented joystick testing utility; *QuickGrabAGA*, a nice screen grabber which features a delayed grabbing option (very handy for beleaguered computer journos such as myself); and a few Workbench backdrops. As with so many utility compilation disks, there's probably something for everyone.

## HYPRA

| | |
|---|---|
| By: | Ernest Ruckle |
| Ware: | Free |
| PD Library: | OnLine PD |
| No of disks: | 1 |
| Price: | 75p + 75p P&P |

In the last few years Hypertext has exploded onto the computing scene in an amazing way. It's been around for years, finding a degree of success in CD-based encyclopedia and the like. AmigaGuide and its Win95 counterpart Windows Help are examples of Hypertext systems too.

But it has been the enormous growth in the popularity of the World Wide Web, the Internet's Hypertext-based wünderkind, that has really led to a massive increase in the use of Hypertext documents as a means of




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# PD selection of the month

## hotdog

| | |
|---|---|
| By: | Various |
| Ware: | Free |
| PD Library: | OnLine PD |
| No of disks: | 1 |
| Price: | 75p + 75p P&P |

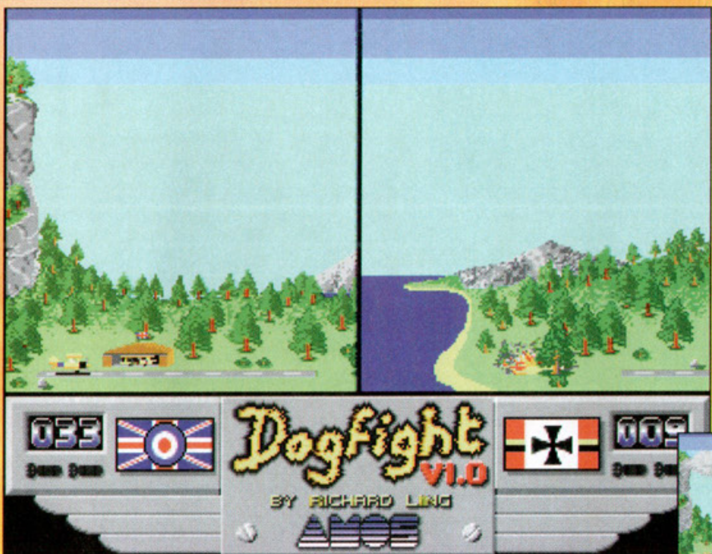
Several issues ago in PD Select I took a look at the latest version of *Dogfight*, one of the simplest yet most addictive two player games to have ever been created for the Amiga. Now OnLine PD have put together a disk containing no less than four *Dogfight* games. Mmm... crazy, but nice.

*DogFight 1.0* was Richard Ling's first attempt at producing a decent Amiga Biplanes clone. It isn't very AGA-friendly but it's a fine game which is shockingly addictive. A two player, split-screen blast-fest par excellence, *Dogfight 1.0* is joined here by version 1.1, an update featuring more colourful graphics, extra animation, passing Zeppelins and a nicer game menu.

Then there is Dan Rhodes' hugely entertaining *Dogfight Simulator*, which allows up to four players to compete simultaneously using a combination of joystick and keyboard control systems. The graphics are simple but colourful, and the simplicity lends Rhodes' effort a responsiveness which occasionally appears to be lacking from Ling's seminal shooter. I can also exclusively reveal to my loyal PD Select readers that erstwhile editorial team members at one of *Amiga Format's* now departed rivals were known to shout loudly and sometimes abusively at one another over a lunchtime crack on this particular gem.

The disk also features Chris Hodges' superb *Strike Commander*. The only game on the disk to feature a solo playing option (not to mention guest appearances from Lemmings and Flying Saucers), this natty number comes in two flavours – a plain vanilla 68000 version, and a more pacey and colourful '020 version. Of course, *Biplanes* clones are really the most fun when at least one friend is on hand, but the inclusion of a one player mode, with the computer player proving fiendishly good at the game, is extremely welcome.

Although in terms of gameplay the four programs here do not offer a great deal of variety, between them they should be capable of keeping the attention of you and your mates for a long time to come.






Tally-ho chaps! The German plane lies in flames at the end of the runway (above) and we haven't even taken to the skies yet... but now they're showing off with snazzy tricks and stunts (right).

conveying almost every kind of information imaginable.

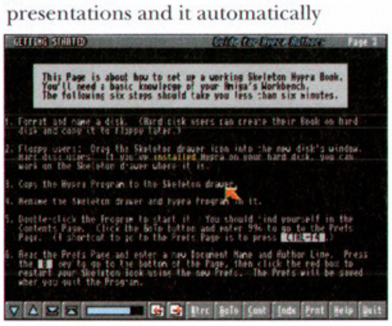
The beauty of Hypertext is that the reader can explore aspects of a subject which interest him by simply clicking on keywords. Typical Hypertext documents include sounds and pictures too, making them far more versatile than conventional books or text files.

*Hypra* is a package designed to enable you to create your own Hypertext presentations. It will run on any 1 Mb Amiga, although its author reckons that it doesn't like running on some A1200s which have trapdoor RAM boards fitted and enabled.

To *Hypra's* credit, it's a far more accomplished product than many similar programs. It's entirely self-contained, capable of producing some genuinely professional-looking presentations and it automatically squashes text and graphic files down to around half their original size. It's also totally free.

On the other hand, by using a program such as *Hypra* to create a presentation you are restricting your work to being viewed on an Amiga, whereas if you opted to use the most popular Hypertext system in the world today, HTML (the HyperText Markup Language of Web fame), anyone with a Web browser or HTML file viewer could take a look at your work, regardless of the machine they owned.

That said, using *Hypra* is more straightforward than constructing HTML pages using anything but a top-flight, dedicated HTML editor, and that could cost you a pretty penny. The choice, as they say, is yours.

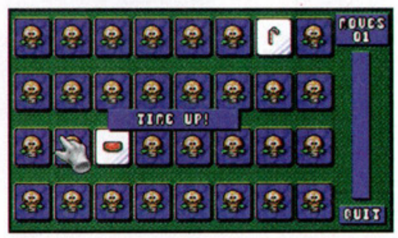


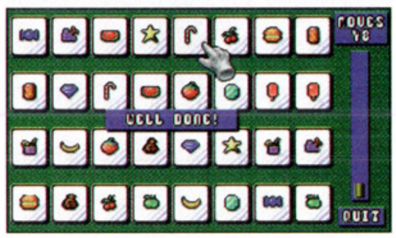
*Hypra* comes with very detailed and easy to follow instructions.

## BUBBLE POP MEMORY

| | |
|---|---|
| By: | Software of Sweden |
| Ware: | Free |
| PD Library: | Classic Amiga Software |
| No of disks: | 1 |
| Price: | £1.00 + 75p P&P |

This AGA-only memory game combines some attractive graphics with a user-friendly point-and-click interface, making it one of the better attempts at exploiting this well-worn genre.




Just to prove we have the brainpower to win (above). Although not all of the time (top).

The gaming screen shows 32 cards turned face down, and the player has to turn cards over two-at-a-time in an attempt to locate pairs of identical symbols on the other sides. Once a pair of cards has been located it remains face-up and the objective is to uncover the 16 pairs in as few goes as possible.

There is a high-score table so you can see whether you actually get any

Continued overleaf ➡

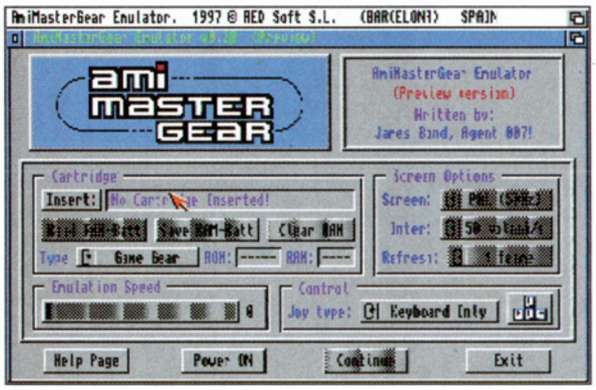
better at the game as time goes by.

The bright and colourful visuals are complemented by some pleasant enough music, and the animated finger (which points to cards when you click on them) is a nice touch too.

A revolutionary concept in gaming it may not be, but as a reasonably enjoyable diversion Bubble Pop Memory will appeal to folk eager to put their old grey matter through a light workout.

## GAMEBOY

| | |
|---|---|
| By: | Various |
| Ware: | Free |
| PD Library: | OnLine PD |
| No of disks: | 1 |
| Price: | 75p + 75p P&P |




Gameboy, Master System and Game Gear emulation, so you can play *Tetris* on your Amiga.

Before the PC started to dominate the home computer world a few years ago, and once the Amiga had dealt with Atari's technically inferior ST, the main competition to our favourite machine's stranglehold on home gaming came from the consoles.

With Sony's Playstation still years away, Sega and Nintendo ruled the console roost, with a Master System or an NES finding its way into millions of living rooms around the planet. This wasn't enough for the big boys, however – achieving total domination of the games scene meant producing the most popular hand-held console too.

As things turned out, the most popular hand-held console proved to be Nintendo's Gameboy, despite the fact that it was technically inferior to Sega's colour Game Gear and could not even hold a candle to Atari's tragically unsuccessful Lynx.

While on paper it was primitive, the Gameboy earned so many admirers because the games Nintendo released for it were invariably brilliant. From the humble *Tetris* cart which was bundled with the machine for many years, to addictive tennis simulations, blasting games and so on, Gameboy games were simply great fun to play.

Since the Amiga has something of a talent for emulating other machines, it is no great surprise that several Gameboy-loving programmers have come up with ways of running those classic carts on their "proper" computers. Two such emulators can be found on this disk, along with a Master System/Game Gear emulator (the latter Sega console essentially being a portable version of the former). With emulation always involving a considerable amount of system-intensive calculations, all three programs require your Amiga to be based on at least an '020 processor.

There is also a small program which patches Gameboy carts to allow players into a Trainer mode in which they can hone their gaming abilities to those of a console-crazy ten-year-old kid.

Copyright laws being as they are, only one game is included on the disk, so you'll either have to find a way of dumping the contents of any old cartridges you might own onto a floppy disk, or else you'll have to start searching for cartridge dumps in the public domain or on the Internet.

This disk will probably appeal most to die-hard Gameboy fans who have parted with their machines and want to relive happy memories, although I suppose if you want to find out what all the fuss was about then it might also be worth getting hold of.

## MICROPAINT

| | |
|---|---|
| By: | Frank Reibold |
| Ware: | Share |
| PD Library: | Classic Amiga Software |
| No of disks: | 1 |
| Price: | £1.00 + 75p P&P |

I've said this before and I'll say it again now for good measure – most PD paint programs are much of a muchness. It seems that after writing their first *Breakout* clone, every programmer wants to produce an art package which they then release as freeware or shareware.

Almost without exception, these programs are underpowered, irritatingly limited in some bizarre manner (often by virtue of the fact they were programmed in some form of BASIC), and completely useless in a world where every Amiga owner has *PPaint* or at least an old version of *Deluxe Paint* that came free with their machine.

Having said all that, *MicroPaint* is a better effort than most. It supports Datatypes, meaning that you're not limited to using the IFF-ILBM file format; it supports all graphics modes except HAM; it has some simple image processing tools, such as a colour calibration facility and a smattering of distorting and modifying features; and it has an ARexx port which supports a wide range of commands, meaning that scripts can be written so that, for instance, several effects can be applied quickly and easily to a large number of files.

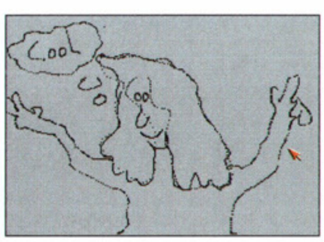
On the down side, it has some strange quirks. Although *MicroPaint* can load images in any format for which you have the datatypes installed, it does this by converting the image into an IFF picture using a separate program called *DT2IFF*. Consequently, converting a picture from one file format is, according to the documentation, best achieved by loading *MicroPaint* twice and using one to grab the screen which the other is displaying – there are no exporting modules here.

To a certain extent all this is irrelevant in the demo version anyway, because it can't even save anything in IFF format. There are some problems which can arise when using ARexx macros, but these aren't entirely the programmer's fault as the operating system itself is has its own peculiarities.

If you don't own *PPaint*, or merely fancy taking a look at what is, on balance, a perfectly competent if not especially outstanding art package, then by all means get hold of *MicroPaint* – just don't expect anything capable of rivalling the commercial packages.

It runs on any Workbench 2 machine (although you will obviously need Workbench 3 to use datatypes) with at least 1Mb of memory and a hard drive. Registering for the full version of the program will cost you US$15.



Create stunning images like Colin's effort on the left. And we let him do the art for the whole of *Amiga Format*...

## QUASAR WARS

| | |
|---|---|
| By: | Light Designs |
| Ware: | Demo |
| PD Library: | OnLine PD |
| No of disks: | 1 |
| Price: | 75p + 75p P&P |

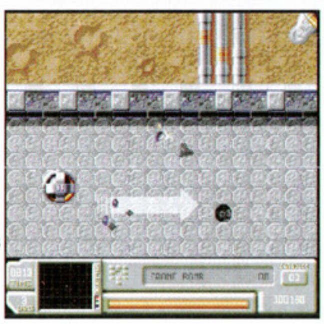
In the heyday of the Amiga games scene, top-quality shoot-em-ups were so commonplace that blasting fans were absolutely spoilt for choice. These days however, with only a few new games appearing each month, it's a rather pleasant surprise to come across a polished action game.

Although this disk only offers a four level demonstration of the excitement and addiction offered in the full version of *Quasar Wars*, there is enough here to suggest that it could be well worth your while to part with the £15 fee (which drops to £12 if you have the game sent to your email address in DMS format).




*Quasar Wars* is a slick slice of blasting brilliance, combining smoothly scrolling tasty visuals and a pumping soundtrack with some intensely addictive gameplay. There's probably a convoluted storyline (there always is in these games) but nobody is bothered about all that, as top quality arcade action is the order of the day here.





Buy essential supplies (top) and then race around alien worlds, blasting anything that thinks it's hard enough to have a go.

After being briefed on the objectives of each mission, you are zapped down to an alien world, where you take control of a small spacecraft which tears around the multi-directionally scrolling landscape, collecting various pods and blowing all manner of hostile starships back to their maker.

The full version boasts additional baddies to blast out of the skies, more levels, new graphics and music and so on. Once you have taken a look at this impressive demonstration version, I don't think it will be long before you get around to buying the full game.

## AMIGA WIN

| | |
|---|---|
| By: | T Quigley |
| Ware: | Free |
| PD Library: | Classic Amiga Software |
| No of disks: | 1 |
| Price: | £1.00 + 75p P&P |

Fruit machines are curious beasts. Lots of people pop in a couple of pounds when they're in the pub, but most of the time they won't drop any money at all. On the other hand, there are some true fruity experts out there. One bloke I know rarely leaves a machine without having cleared it out completely, and won't bat an eyelid about putting in thirty or forty pounds because he knows he'll finish up with three times that an hour later.

On a rather more unpleasant note, a less competent gamer who frequents a local public house actually took a tinkle in his trousers while he was standing at the fruit machine, because he thought it was about to pay out the jackpot and he didn't want anyone else to nip in and clear it out while he was in the toilets.

If such stories of fruity obsession concern you as much as they do me – after all, I'm much more of a Cluedo man, because it's a guaranteed tenner when you know the ropes – then perhaps *Amiga Win* will be to your liking. It offers all the, erm, excitement of a fruit machine, and it won't leave you with insufficient funds to afford a pint of your preferred poison afterwards.




Woo-hoo! I'm rich! Now if only my Amiga would cough up the money...

It offers hold and nudge options, a skill-stop feature and much more, and even if it doesn't appear to be the most responsive fruity you'll ever play, it must certainly be the cheapest. The downside is, of course, with *Amiga Win* you can't get your fruity expert pal to drop enough money to buy the next round.




## LOONY WORKBENCH BACKDROPS #1

| | |
|---|---|
| By: | Loony |
| Ware: | Free |
| PD Library: | OnLine PD |
| No of disks: | 2 |
| Price: | £1.50 + 75p P&P |

Anyone who has ever taken a look in the pictures directory of Aminet will know just how many people have felt the need to share their Magic Workbench backdrops with the world at large. This two disk collection of 38 IFF images was uploaded by an Australian chap and, while they're nothing particularly special, they're not too bad either.

If our Aussie friend drew the pictures himself then he is clearly a talented artist. On the other hand, he may have just scanned the things in, since you never can tell these days.

As with so many backdrop pictures, the subject matter is not particularly broad. There are plenty of scantily clad comic book women, a couple of comic book beasties... and that's about it. One for adolescent males, I suspect. AF

## Top 10 Public Domain titles

1. DARK CITADEL
2. BURST A MARBLE
3. HERMAN'S EDUCATIONAL ADV
4. KANGY
5. MUI V3.8
6. EUROPEAN MANAGER
7. AMIGA PET
8. METAL MAYHEM 2
9. EDWORD 5.6
10. PROTOTYPE

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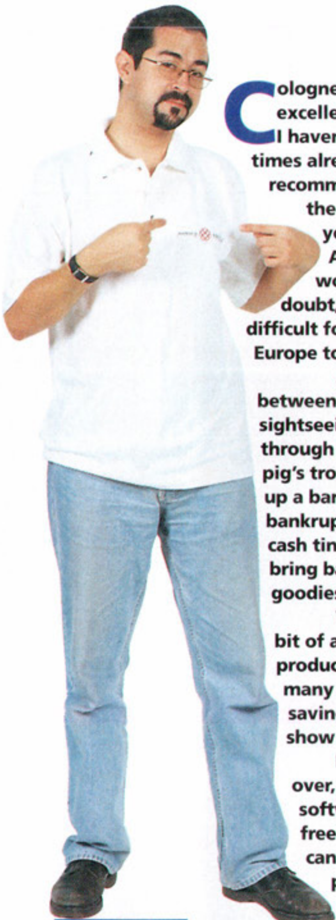
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# SERIOUSLY AMIGA

In-depth reviews of hardware and software, that you can trust.



Cologne was really excellent this year, and if I haven't said it enough times already, I really recommend you taking the time to go next year. It is the best Amiga show in the world without a doubt, and it isn't that difficult for anyone in Europe to get to.

Anyway, in between a bit of historical sightseeing, chewing through huge numbers of pig's trotters and running up a bar-bill which bankrupted the *AF* petty cash tin, I managed to bring back lots of goodies to review.

There has been a bit of a drought of new products recently, as many developers were saving them up to show in Cologne.

Now the show is over, the hardware and software is flowing freely again, as you can tell from our jam-packed reviews section. Enjoy!

**Ben Vost**

## AMIGA FORMAT'S REVIEW POLICY

...is very simple. ***Amiga Format*** is staffed by some of the most experienced Amiga users in the world and what we say goes. OK?

### WHAT OUR REVIEW SCORES MEAN

| | |
|---|---|
| **90+%** | The crème de la crème. Only the very best, most versatile and effective products are awarded an ***AF Gold*** – the most highly prized rating there is. |
| **80-89%** | These products are very good, but there are minor flaws or areas that could be improved upon. |
| **70-79%** | Not a bad product but quite possibly one that needs a serious update. |
| **60-69%** | Average products with somewhat limited features and appeal. Products in this category tend to be flawed. |
| **50-59%** | Below average products which are unlikely to impress your mates or your wallet. Avoid. |
| **40-49%** | Overwhelmingly poor quality products with major flaws. |
| **Under 40%** | The absolute pits. |

# Battle of the Picture Managers

# ArtStudio Professional VS Picture Manager Professional

**Need a program to catalogue all your clipart images? Errol Madoo stands back as the two heavyweights fight it out.**

AMIGA GOLD FORMAT

Should you be lucky enough to own lots of image and clipart CDs you're bound to have reached a point where you said to yourself, "I know I've seen a great picture of a Mongolian spotted radish, but which CD was it on?"

You soon come to realise that, although having loads of image CDs at your disposal is great, they are pretty useless unless you are able to quickly locate the image you want.

Cataloguing, sorting and even printing the contents of a CD containing images with undescriptive filenames and alien file formats, can be a very time consuming task.

Some of the better graphics CDs make the job a lot easier by supplying graphics in IFF format along with index screens, but if your CDs don't include these features you are faced with two main options.

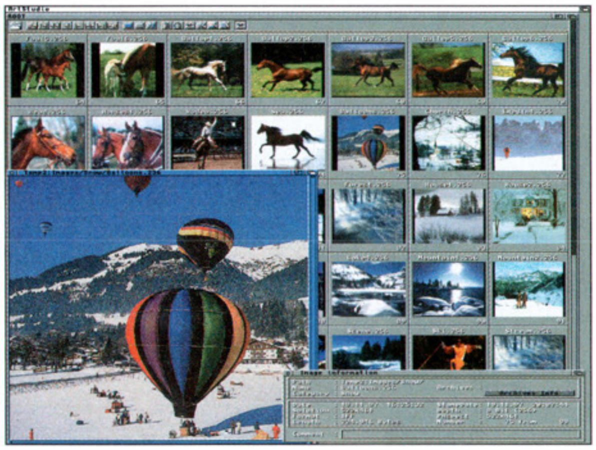
The first is to trawl through the images one by one, possibly needing to convert them as you go. If you don't fancy that, you can get hold of some software that will automatically do the job for you instead.

> ... both of these programs take matters one big step further and offer features such as image conversion...

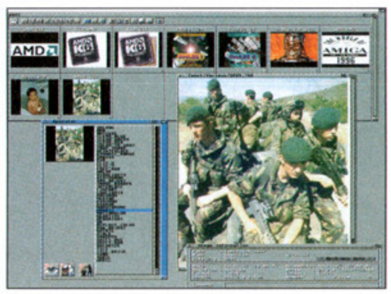
## FOOD FOR THOUGHT

**Although these programs are great for cataloguing images, I found myself asking if they were really necessary. Most graphics programs nowadays offer the user the ability to generate some sort of index screen. If not, there are a few shareware programs available, such as *ImageDex*, that don't offer the fancy features but get the job done. Furthermore, it should also be noted that saving catalogues to hard disk will take up lots of hard disk space.**

**During testing, I created a 16Mb directory containing 99 files sorted into four sub-directories with a mixture of images and clipart files. The size of the resulting catalogue files generated by these programs was eye opening. *Picture Manager Pro* created 1.25Mb of catalague files and *ArtStudio Pro* squeezed its catalogue files into 1.08Mb. On checking the catalogues supplied with *ArtStudio Pro*, I found that an Aminet CD index catalogue averaged 8.5Mb. Bearing in mind that Aminet CDs don't normally contain too many images, on rough calculation an average "image only" CD could quite easily take a 20Mb chunk from your hard drive.**



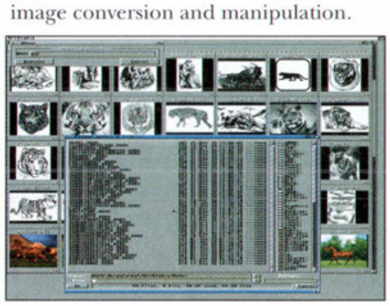
***ASP* in action, displaying the thumbnails, an image in a window and the image information screen.**



***ASP* loads lots of formats. Here it is about to apply the mosaic filter to an SAS hit squad.**

If you have a good collection of graphics CDs in your library, you'll be pleased to know there are two new packages, *ArtStudio Pro* and *Picture Manager Pro,* that promise to automate the whole process of cataloguing for you. They are designed to go through image CD-ROMS, hard drives or individual image directories, generating thumbnail screens as they go.

Once these index screens have been created, they can be sorted, printed, edited and saved to hard disk ready for use. This feature alone is great but both of these programs take matters one big step further and offer features such as image conversion and manipulation.



***ASP* comes supplied with a whole host of ARexx scripts.**

## ARTSTUDIO PROFESSIONAL V3.0

*ArtStudio Pro* comes on CD-ROM and includes various utilities and 577Mb of ready-made catalogues. Installing takes up 6.1Mb of HD space, performed from the standard Amiga installer. It was trouble free, but the installer did wrongly say that it had installed *ArtStudio Pro* to another location.

Once running, most of the default settings worked quite happily but I'd recommend having a quick peek at the various program preferences to make sure that the default settings are OK. I'm running a CyberGraphX card and found that *ArtStudio Pro* had defaulted to display images on a PAL Hi-res screen.

Having set it up, it's time to start work. You'll need to create a new catalogue first. This involves selecting "New catalog" from the Catalog menu, giving it a name, hitting the "Create new" button and saving it to disk.

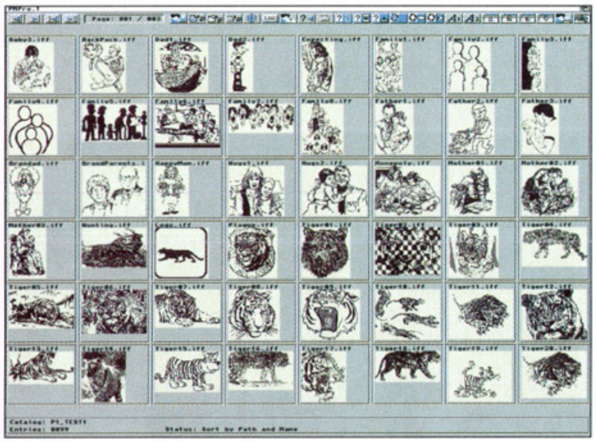
Your next step is to select "Include images" from the Catalog menu and choose a directory or volume that contains the images you want indexing.

Now your first catalogue is ready you can start experimenting with the program's features. There's a whole host of things you can do and most of the commonly used features are accessed via a button strip at the top of the screen.

The "i" icon pops up a window which displays lots of information relating to the currently selected image, the "magnifying glass" icon displays a quick magnified view of the image and the "eye" icon displays the full image. I found the most useful icon to be the "popup menu", which gives you a small popup menu whenever you select an image, giving you direct access to ten of



**Clicking on an image brings up *ASP's* popup requestor giving you access to lots of options.**



Scan through your clipart CDs with ease.

the most commonly used features of *ArtStudio Pro*. The popup menu also lets you launch any one of the 45 supplied ARexx scripts, so if you wanted to load your selected image into *Personal Paint* for a bit of pixel editing, select the "ImageToPPaint" ARexx script from the file requestor and voila, *Personal Paint* is launched and your image loaded into it, ready for editing.

*ArtStudio Pro's* 46 operators (or filters) allow you to quickly manipulate and apply interesting effects to images, and once you're happy with the results you can save your new image to disk.

I would have liked to have seen an undo button in the operator window, because if you are not happy with the results of an operator, you have to delete your image, reload it, and then start all over again.

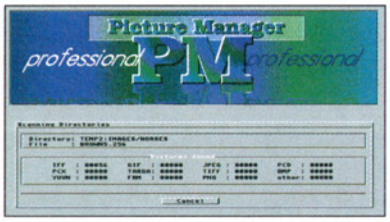
## PICTURE MANAGER PROFESSIONAL V4.10

*Picture Manager Professional* comes on two floppy disks packaged inside a normal looking CD-ROM jewel case.

It performs a nice clean install using 3.5Mb. It should be noted that *Picture Manager Pro* makes use of (and installs) Superview libraries, so if you already use Superview you will save around 850k.

Creating a new image catalogue is much the same as in *ArtStudio Pro* and is simply a matter of selecting "New..." from the Catalog menu, setting the thumbnail size, giving it a name, selecting "Expand" from the Catalog menu and then choosing the directory or device that you want cataloguing in the file requestor.

After your catalogue has been created you can select any image and a popup menu will give you access to 12 of *Picture Manager Pro's* functions, including image information, view,




***PMP*** **at work scanning directories.**

convert and process. The process window doesn't offer you the thumbnail preview of *ArtStudio Pro* but it provides a View button so you can see the results after a filter has been applied.

Again, there's a lack of an undo feature but I like the ability to save your new modified image to disk directly from the process window.

## HEAD TO HEAD

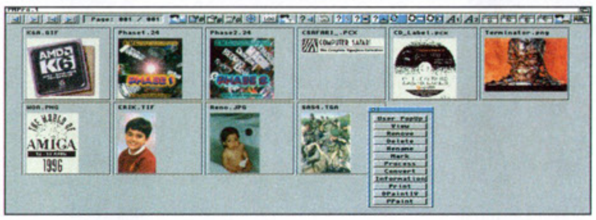
Although these programs offer similar features and specifications, they are totally different beasts. Both offer the ability to pull graphics straight out of LhA/LZX archives and this will save lots of time for those obtaining their images from online sources.

The extremely powerful *ArtStudio Pro* has more features than you'll ever need, but I found it buggy in places and it sometimes crashed without reason or simply froze, forcing a system reboot. On occasion screen redraws were slowed to a snail's pace and I found that some sections of the Amigaguide file just refused to function correctly.

In comparison, *Picture Manager Pro* is well thought out and silky smooth in operation. It's not as powerful or feature rich as *ArtStudio Pro*, but what it does it does very well indeed.

It is exceptionally stable and its online help is excellent, with individual help topics easily accessed from the dedicated Help menu.

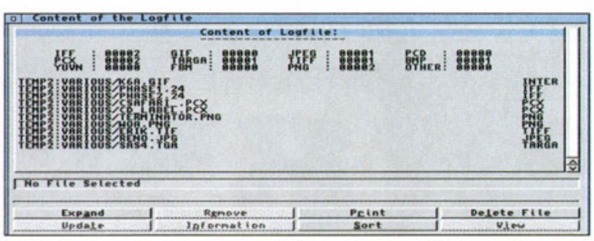
**Numerous image formats displayed in living colour. Note the nifty popup requestor.**





**A couple of** ***PMP's*** **filters applied to an image. From left to right: original, oil paint and colour emboss.**

**Directory scan results,** ***PMP*** **correctly identifies a multitude of image formats!**



## FEATURE LIST

**SUPPORTED GRAPHIC FILE FORMATS**
**Common:** IFF-ILBM, IFF-ACBM, IFF-Deep, IFF-YUVN, Datatypes, PCX, GIF, BMP, TIFF, EPS, Targa, WPG, SGI, Sunraster, MacPaint, JPEG, PCD, QRT, PNG, CDR, WMF, FIG[1], Koala, CGM[2].
***PICTURE MANAGER PRO –***
FBM, PNM, Doodle, IMG, PIC, MAC, PICT, POV, Degas, C-Source.
***ARTSTUDIO –***
**Bitmap:** Alias, FITS, GEM, Impulse, IPBM, PBM, PGM, PPM. PSD, RAW_RGB, Rendition, RLE, SVG, TIM, Wavefront,
**ZX Animation:** Anim, AVI, FLIC, MPEG, Quicktime.
**Vector:** AMF, DR2D, DSDR, DXF, FIG.
**Other:** FAX, FAX_IFF, Font, Icon.
**Features:** Direct ScanQuix support and HTML image catalog export.
[1]*Picture Manager Pro* needs Ghostscript for this format.
[2]Extra Graphic file format support.

### ArtStudio Professional

**DISTRIBUTOR:** UK,TBA. Germany, Titan Computers Tel: +49 (0)421 481620
**PRICE:** around £40.00
**REQUIREMENTS:** WB2.1+ HD 6Mb RAM

**SPEED:** ●●●○○
Fast at thumbnail generation but can slow to a snail's pace after that.
**MANUAL:** ●●○○○
Diabolical, needs lots of work.
**ACCESSIBILITY:** ●●●○○
Can be a little confusing and menu terminology needs attention.
**FEATURES:** ●●●●●
More than you will ever need.
**VALUE:** ●●●●○
A fair price for what it offers.
**OVERALL VERDICT:**
It does what is promised but needs cleaning up.

**68%**

### Picture Manager Professional

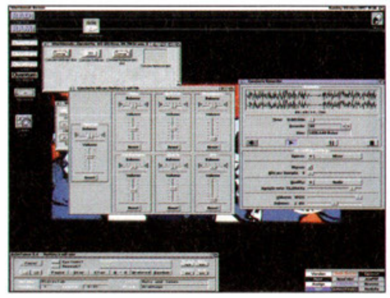
**DISTRIBUTOR:** Blittersoft Tel: 01908 261466
**PRICE:** £39.95 + p&p
**REQUIREMENTS:** WB2.1+ HD 3Mb RAM

**SPEED:** ●●●●○
Sleek, fast and very fluid.
**MANUAL:** ●●●●●
Excellent Amigaguide, no manual.
**ACCESSIBILITY:** ●●●●○
Easy. Little need to refer to the manual for basic features.
**FEATURES:** ●●●●○
Very good at what it does.
**VALUE:** ●●●●○
Superb, as it'll save you lots of time.
**OVERALL VERDICT:**
If you need to calalog your CDs, this is the one to go for.

**92%**

# Concierto

## What produces 16-bit sound but needs a graphics card to work? Ben Vost has the answers...



Recording from CD with the mixing desk in the background.

Do you want a soundcard? Current ones are a bit expensive aren't they? Fortunately, if you're the lucky owner of a Picasso IV you can get yourself a cut-price model that's every bit as good as more developed cards because it's designed to fit onto your graphics card.

When the Picasso IV first came out it was announced that the board actually had a modified ISA and PCI bus – the signals were all there but the connectors had been changed to better suit the dimensions of a Zorro card.

Now, in the Amiga market, we've heard it all before. "Buy our card now and in a few months you'll be able to buy this add-on for it." MPEG video, video capture, TV tuning and more have all been promised to owners of new and expensive hardware.

Village Tronic have decided to buck the trend of promising but not delivering by releasing the Concierto soundcard for the Picasso.

This tiny board contains one chip of any significance, a Yamaha OPL3 synthesiser chip and some logic to make sure it works properly, but it gives you true 16-bit sound for your Amiga (thanks to AHI), 16-bit, CD quality sampling and mixing for all the various sound inputs and outputs you want connected to your Amiga. Not only that, but Concierto comes with a MIDI interface (MIDI in and MIDI out) to allow you to hook up your favourite keyboard if you want to push the whole sound thing that little bit further.

> ...have sound like most PCs and Macs, with 16-bit stereo sound at up to CD quality pouring out of your speakers.




That book is about A5, and the Concierto itself is the first board to its right. The other board is the output backplane.

With more and more games, like *Myst, Genetic Species, Foundation* and others, offering support for AHI sound, the Concierto means that rather than taxing your poor old Paula to get dodgy 8-bit sound out of your Amiga while playing, you can take advantage of the ability to have sound like most PCs and Macs, with 16-bit stereo at up to CD quality pouring out of your speakers. Samples will sound so much better and music won't be crackly in the slightest.

But is it any good? Well, at the moment there's no real software to drive the Concierto's synthesiser chip, so no Concierto-based MODs, but the sound sampler part works beautifully, and the AHI sound from games really is very impressive indeed.

The mixer, on the other hand, is quite confusing to use. It has six inputs to juggle – voice, switcher, line in, microphone, synthesiser and AV, but what are these? What do they represent? That's not altogether clear. However, by playing around with the sliders while you have sound playing, you swiftly get an idea of which slider does what, but I would like to have seen them named just a little bit more clearly.

Even so, most of the time you don't need to mess with the mixer because the sound seems to be heard from the speakers no matter what settings you have. Your CD audio is mixed with the sounds from your Amiga, mixed with samples you may be playing. Overall, Concierto does a very good job.

## WHAT, NO SOFTWARE?

**You may have been surprised to learn that the Concierto comes with no software to actually drive the OPL3 synthesiser, but never fear. The reason that Village Tronic give for this is that they aren't a huge company and there are plenty of very talented Amiga programmers out there that will want to create their own software, not just for the synthesiser, but for all the parts of Concierto. That is the reason why the Picasso96 API is now freely available to anyone who wants it – to allow them to write their own software for this and other Picasso boards. While this is a great idea, it would have been nice to have had at least some software with the Concierto, rather than spending all that money and having to write your own.**

**Presumably the same state of affairs will exist with the other two upcoming modules, the Pablo video encoder and the Paloma TV tuner. As it stands, Paloma has software to allow you to watch TV on your Workbench screen, thanks to the PicassoIV's picture-in-picture function, but the authors of the software were unable to tell me whether there would be teletext decoding or sequence grabbing at the time of writing this piece. I can only presume that these things may be added at a later stage through Village Tronic's admirable Internet technical support.**

**DISTRIBUTOR: Blittersoft 01908 261466**
**PRICE: £99.95**
**REQUIREMENTS: Picasso IV, '040 recommended for AHI overhead**

**SPEED:** ●●●●○
Sampling and mixing without glitch.

**MANUAL:** ●●●○○
My manual was German, hopefully yours is more understandable.

**ACCESSIBILITY:** ●●●●○
Dead easy to use and configure.

**FEATURES:** ●●●●●
It's a 16-bit soundcard – you don't get many of those on the Amiga.

**VALUE:** ●●●○○
A bit overpriced for such a tiny board.

**OVERALL VERDICT:**
A very good general soundcard, if a bit overpriced.

**85%**

# Eyetech's Christmas Crackers: 4-speed CDROM system - £99.95!!!; A1200 Magic Packs w/£180 worth of vouchers - £249.95; EZ-IDE s/w from £12.50; 030 accel's from £68.95 ; 040/25MHz (19 MIPS) £138.95; 39 Mips '060/50MHz £278.95; A600 33MHz '030/MMU/FPU/standard simm to 32MB - £99.95; DIY-EZ-Tower from £99.95; 8-speed CDPlus £149.95; 460KPortJnr £44.95; LS120 £114.95; (Price down, New)

*Q. What fits in a floppy bay and reads & writes 120 MB PC & Amiga cartridges AND 720KB & 1.44 MB PC diskettes?*

## *A. The All-New LS120 ATAPI drive from Eyetech*



- √ *120MB backup and PC 1.44MB diskette compatibility in one unit*
- √ *Bare Drive just £114.95 .120MB cartridges just £14.95/1 or £34.95/3*
- √ *EZ-IDE universal EIDE driver software is required - 50% discount when ordered with the LS120 or 4-device buffered interface . Upgrades available from Eyetech-supplied IDE-fix available - see below right.*

**HEALTH WARNING** *"A buffered IDE interface is essential to avoid overloading of the A1200's IDE port when adding extra devices"- John Kennedy - AF - July 1997*

Don't be tempted to skimp. Fit an Eyetech 4-way IDE/ATAPI 3-chip buffered expander to preserve your Amiga's Health. *The original and best - Just £39.95.* Now with 50% discount off EZ-IDE software

# The Mk2 EZ-TOWER



*"This definitely one of the easiest solutions to building your own tower." John Kennedy, Amiga Format - July 97*

Mk2 EZ-Tower with DF0: faceplate/cable- £119.95

DIY option - all parts/instructions provided - £99.95

Collection, fitting and delivery service- *Please ring*

*See our full-page EZ-Tower feature advert in this magazine*

*... Or buy a CDPlus unit (below) and get an EZ-Tower* for just £99.95*
(*as an alternative to the regular CDPlus case)

## The Top-Rated Eyetech *CDPlus* for the A1200

- √ 8-, 16- or 24-speed external CDROM unit in quality, CE-approved case with heavy duty PSU
- √ Leaves trapdoor free for accelerators / memory expansion and the PCMCIA slot free for digitisers, modems, samplers etc
- √ Option to add additional HD's, CDRoms, LS120s, SyQuests, *IDE Zips*, Jazs, SyJets, ATAPI tape streamers etc powered from the CDPlus unit
- √ Comes with special Eyetech *'060-compatible* Mk2 4-device EIDE buffered interface board - easily fitted in minutes with no cutting/drilling (Note that IDE CDROMS *must never* be directly connected to the A1200 without a buffered interface - ask any qualified electronics engineer!)
- √ Gold plated audio phono sockets at rear (CD+ only) and front panel headphone socket and volume control



*The CDPlus and SyQuest EZ135 drives. The IDE Zip Drive is the same size as the EZ135*

***Amazing Value*** **NEW! 24-Speed -*only* £199.95**

**8-speed - *only* £149.95  16-Speed -*only* £179.95**

## *Considering a PowerStation?*

**The CDPlus is now available with a, 230W, CE-approved, PC MiniTower* or Desktop* case (which can also power your A1200) - *for only £20 extra***
(*as an alternative to the regular CDPlus case)



**Amiga User International - *97%***
*"... It all worked faultlessly ... "*
**Amiga Format - *96%***
*"... An absolutely superb bit of kit.."*
**Amiga Shopper - *90%***
*"... This is a quality product..."*

## Amiga 1200 Magic Packs



*- Direct to Eyetech from Amiga International Inc.*

- √ Full UK specification with Kickstart 3.1/Workbench 3.1 disks and manuals, UK psu, mouse, mousemat and TV lead.
- √ Fantastic software bundle including Wordworth 4SE,Turbocalc 3.5, Datastore 1.1, Photogenics 1.2SE, Personal Paint 6.4, Organiser 1.1, Pinball Mania and Whizz
- √ Three very special Eyetech bundles designed to meet every need and budget - all with 12 months return-to-base warranty

**The Eyetech Starter Pack** *Just £249.95*
- √ Diskette pack as above with 2MB graphics/program memory and built in hard drive interface. Hard drive and memory expansion recommended for non-games use.
- √ ***Over £180 worth of discount vouchers for future hard drive, CDROM, accelerator/ memory and EZ-Tower upgrades from Eyetech***

**The Eyetech Productivity Pack** *Just £299.95*
- √ As above with 2MB graphics/program memory and ***170MB hard drive*** . Just switch on & use straight from the box!
- √ Scala MM300 preinstalled on the hard disk (needs 4MB memory expansion to run properly)
- √ ***Over £180 worth of discount vouchers for future hard drive, CDROM, accelerator/ memory and EZ-Tower upgrades from Eyetech***

**The Eyetech *EZ-Tower* Professional Pack** *Just £799.95*
- √ Full ***EZ-Tower*** with ***EZ-Key*** keyboard adapter, ***Windows95 keyboard,*** and ***250W psu,*** with software and manuals as above and with mouse, mousemat & TV lead. (No A1200 k/b or psu)
- √ ***25MHz '040*** processor (approx 19 Mips) with MMU & FPU and ***16MB*** of program memory.
- √ ***1.7GB TowerDrive*** with Workbench 3.1 and shareware utilities preinstalled
- √ ***8-speed CDROM*** including the ***Eyetech 4-device buffered interface*** and ***fully registered CDROM/hard drive/IDE Zip drive/LS120 driver software preinstalled***
- √ ***880KB floppy drive*** including faceplate
- √ Fully installed and tested together with all relevant cables and manuals

***AND the option to have fitted:***
- √ An ***LS120*** 720KB/1.44MB/120MB drive/cable for ***just £99.95 extra*** (at time of purchase only)

## *EZ-IDE*

**New! Only available from Eyetech - *the* Amiga IDE/ ATAPI peripheral specialists. Probably the only hard drive/CDROM/LS120/ZIP/SyQuest s/w you'll ever need.**

- √ Supports LS120, Zip, Jaz, SyQuest and other IDE/ATAPI removable cartridge drives AUTOMATICALLY. Cartridges just appear on the Workbench when inserted and disappear when ejected! Eyetech's IDE ZipPrep Tools are also included.
- √ Optimises IDE hard drive performance automatically. Eliminates 'MaxTransfer' nightmares.
- √ Extensive CDROM support including multidisk changers, direct digital audio transfer, CD32 emulation, high performance filesystem support for Amiga, Mac and PC CDs.
- √ Ready-to-use as shipped. No sending away to foriegn parts for registration codes as with the 'commercial' versions of IDE-*fix*97 and Atapi Pn'P.

| | |
|---|---|
| EZ-IDE s/w | £34.95 |
| Upgrade from Eyetech-supplied* IDE-*fix* | £12.50 |
| With* 4-dev i/f, CDPlus, IDE Zip or LS120 | £17.50 |
| Competitive u/grade* | £24.95 |

**Trade-in & proof of purchase required*

**Xmas '97 Special - limited availability *4-SPEED A1200 CDROM SYSTEM FOR JUST £99.95!***



***Includes 4-speed CDROM, metal case, 4-device buffered interface, PC-type power supply & CDROM power cable, 40-way and 44-way IDE cables and instructions***

## The Amazing Iomega *IDE* Zip Drive

*Another first from Eyetech*

- √ *Use a different cartridge for each application or family member*
- √ *Ideal for transferring multimedia data between Amigas and/or other platforms*
- √ ***Fits in any Amiga/desktop/minitower floppy drive bay or in external case***

CARTRIDGE CHANGES AUTOMATICALLY RECOGNISED!



*The IDE Zip drive fitted in an A1200*

**Bare IDE Zip drive** *(inc Eyetech V2.0 Ziptools)* **- Just £99.95**

***EZ-IDE*** **(or equiv) software required - Just £17.50 with drive**

**100MB Zip cartridges just £14.95/1 or £34.95/3** (*A600/1200 buffered interface needed)

## A1200 *InstantDrives* & *TowerDrives*

***InstantDrives*** **and** ***TowerDrives*** **are *only* available from Eyetech**



*"The fastest drive I have tested on any platform ...95%"* **- David Taylor - Amiga Format February 1997**

***Important Notes!***

Thinking of buying a **BIG** drive? Dont waste your money on ***ANY DRIVE OVER 4.3GB*** as the Amiga O/S doesn't support it! (2^32-1 bytes actually). Be warned!

3.5" hard drives - even those described as *'Slim'* - are usually 1"/25mm high and ***will not*** fit in an A1200 without significant modifications to the case and metal shielding - which itself reduces the value of your computer.

- √ InstantDrives require no hole drilling, case clipping, or shield removal required and 3.5" InstantDrives come Inclusive of full fitting kit and easy-to-follow instructions
- √ All drives come ready-to-use with WB3.0 preinstalled & WB2.x install script.
- √ All drives over 350MB also come with over 45 top quality utilities (not shovelware) ***and*** MMe multimedia authoring software preinstalled, configured and ready-to-run.

| | | | |
|---|---|---|---|
| ***InstantDrives:*** | | 2.56GB AV(~3MB/s) | £219.95 |
| ***TowerDrives:*** | | 1.2GB | £129.95 |
| 1.7GB | £149.95 | 2.11GB | £159.95 |
| 3.2GB | £189.95 | 4GB *(to the limit!)* | £249.95 |

## *2.5" InstantDrives for the A600, A1200, SX32 & SX32 Pro*

| | | |
|---|---|---|
| **170MB** | A 2.5" drive ideal for the SX32Mk2 and for the A1200/A600 | £79.95 |
| **540MB** | A fast, superslim drive with ample capacity for most users | £129.95 |
| **810MB** | A superb, superslim drive ideal for users of serious applications | £159.95 |
| **1.08GB** | The high performance superslim drive is ideal for power users | £179.95 |
| **1.8GB** | This top-of-the-range drive is perfect for the A1200 & SX32Pro | £189.95 |

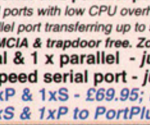
## D-I-Y and Bargain Corner

***Hard-to-find parts for your Amiga project***

| | |
|---|---|
| ***Hard , floppy drive cables and cases*** | |
| 2.5"-2.5" 44-way 2.5" HD cables 9cm **£8.95,** 13cm ,**£9.95**, 60cm | **£19.95** |
| 2.5" 3x44-way hard drive cables for 2 x 2.5" drives (6cm+6cm) | £12.95 |
| 3.5" power & data cables for A600 & A1200 **£14.95;** full fitting kit | **£24.95** |
| 3.5" external hard drive case **£19.95**, 3.5" removable drive case | £24.95 |
| 3 x 40-way IDE cable for 3.5" HD/CDROM ~85cm/2' 9" | £9.95 |
| Custom 3 x 40 IDE cables to 1.5m/5' (enclose drawing) | £19.95 |
| 3.5" hard drive to 5.25" bay mounting adapters | £5.95 |
| 2.5" hard drive to 3.5" bay with 3.5" data/power cable adapters | £11.95 |
| 3.5" floppy/SyQuest/Zip drive to 5.25" bay mounting adapters | £6.95 |
| 40 pin m-f detachable data cable forexternal 3.5" HD/CDROM's | £9.95 |
| Slimline external floppy/IDE SyQuest/IDE ZIP/IDE Jaz case | £9.95 |
| SCSI cable 25way 'D'(m)to 50way Centronics (m) (1m) | £9.95 |
| SCSI cable 50way Centronics (m) to 50way Centronics (m) (1m) | £9.95 |
| 2 x 34pin ribbon cable + faceplate for A1200 int'l floppy in tower | £12.95 |
| 23p-M to 23p-F external floppy ext'n cable **0.5m £12.95; 2m** | £14.95 |
| ***Audio & video cables and adapters*** | |
| 3.5mm stereo jack plug to 2 x phono plugs for CDROM | £5.95 |
| CDROM standard 4 pin inverted T audio connector & phono plugs | £9.95 |
| Phono plug x 2 to phono plug/socket x 2 audio mixer leads | £6.95 |
| Stereo 2 x phono plug to 2 x phono plug 1.1m/4' (4.8m/16' **£9.95**) | £4.95 |
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| Mini-tower or desktop case with 200W/230W PSU, CD & HD/Zip bay, power lead connector block, resistor, cable restraint etc, & full instr'ns | £39.95 |
| Genuine CD32 PSU **£14.95;** Genuine A1200 PSU | £19.95 |
| 4-pin M-F HD prw extn 0.9m/3' **£9.95;** 4-pin(m)->2x4-pin(f) splitter | £6.95 |
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| **A4000 kbds** (new) for CD32/A2000*/3000*/4000 (*adapter +£5) | £39.95 |
| **50MHz capable PGA FPU £39.95; A1200 RAM boards** | £29.95 |
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| **A1200/A600 internal floppy drives £24.95; A1200 keyboards** | £29.95 |
| **Amiga microswitched mouse with mousemat** | £6.95 |
| **ScanQuix3 PC printer cable adapter - parallel Epson scanner** | £9.95 |
| **28.8/14.4 compact data/fax modems** £39.95, **14.4/14.4 from** | £19.95 |
| **A1200 Workbench 3.0 disks (5) £14.95** WB3.1 disks (6) | £19.95 |

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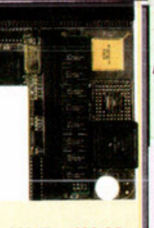
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| | | |
|---|---|---|
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| **50MHz '060 with MMU & FPU. (39 Mips)** | *- Only* | £278.95 |
| **66MHz '060 with MMU & FPU. (51 Mips)** | *- Only* | £339.95 |

*A Standard A1200 is rated at 1.3 Mips. All measurements from Sysinfo*

***Memory** : 4MB - £14.95; 8MB - £29.95; 16MB - £54.95; 32MB - £99.95*

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|---|---|
| ***A1200/A4000 non-Zorro*** | |
| **4-device A1200** buffered EIDE i/f | £39.95 |
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| **PortPlus** 2x 460Kbaud ser + 1 x par | £89.95 |
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| **Audio mixer skts/leads for EZ-Tower** | £19.95 |
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# TV Amazing

**Want a VGA or multiscan monitor, but want to watch TV on it too? Ben Vost gets the best of both worlds with this rather oddly named box.**

There are two sorts of Amiga owners in this world – those with monitors and those without. Unfortunately, those with monitors can be further subdivided into those with CGA-type monitors like the Philips CM-8833 or the Commodore 1084 and the like, and those with a decent monitor that provides a flicker free picture at the Amiga's highest resolutions. There are even some people fortunate enough to have a graphics card with a built-in flicker fixer, completely obviating the need for expensive and mediocre monitors that are able to sync down to the Amiga's standard 15kHz signal.

The idea behind this little box of tricks is to try and even up the balance between these two disparate groups.

> "The Grand TV-Amazing box is a box about as long as your hand with umpteen little ports on the side and back."

Sticking with those people who upgraded from their TV display to a nice shiny VGA or multiscan monitor, I'm sure they must feel a bit left out when it comes to sneaking a bit of TV viewing while waiting for that *Lightwave* render. Until TV tuner cards become a viable option for a graphics card (very soon), these people have to pop back to the lounge for their viewing pleasure.




**Don't be fooled by the coloured buttons on the remote – this unit doesn't support teletext decoding.**

Well, no more. Those of you using your Amiga's composite output or RF modulator plugged into a TV can breathe a sigh of relief at not being forced to buy a horrible monitor, and those with very high spec monitors can get back to watching *Eastenders* thanks to the rather bizarrely-named Grand TV-Amazing box.

The Grand TV-Amazing box is a box about as long as your hand, with umpteen little ports on the side and back. Some are outputs but the majority are inputs. There's an aerial in socket, standard AV connectors (three RCA sockets for video and left and right audio channels), and even an s-video socket. The main output on the back is a single VGA-type, 15-pin, D-sub socket.

Putting the TV-Amazing box in the chain between your Amiga and your VGA monitor, presuming you have a graphics card, is simply a matter of using the lead supplied with the box.

This lead splits into two, one end of which goes to your machine, your monitor lead plugs into one and the other end goes into the box itself. Because of this, even when the TV-Amazing box is switched off you still get your Amiga picture coming through to your monitor.

If, on the other hand, you want to use the TV-Amazing box to connect your A1200 to a decent VGA monitor, you can plug your Amiga's composite signal out (the socket surrounded with yellow) into the AV port on the side of the TV-Amazing, and plug your VGA monitor into the back where it will receive a signal at 31.3kHz and 50Hz refresh.

This means that not only will you be able to view your bog standard 640 x 256 HiRes Workbench, but also resolutions like HiRes Interlaced to give a 640 x 512 picture (all standard PAL settings, without overscan). Having a 1:1 screen aspect is increasingly important for the Amiga these days, and this box will allow you to get one.

Before you rush off and buy one of these boxes, remember that this is not a flicker fixer. You will be able to plug your Amiga into a standard VGA-type

monitor, which can be had very cheaply, but the screen will still be flickery in interlaced modes. This is because the refresh rate of the picture does not get changed. A standard HiRes screen is output from the Amiga at 15.5kHz and 50Hz refresh. The TV-Amazing box will double that 15.5kHz for you, enabling you to see a picture on a monitor that only syncs down to 31kHz.

The same goes for a HiRes Interlaced picture, but now, because

> Having a 1:1 screen aspect is increasingly important for the Amiga these days, and this box will allow you to get one.

the screen image has twice the lines, this effectively halves the refresh rate – the Hz rating – to only 25Hz.

This won't change when you plug this box into a VGA monitor, but it will mean that you can at least see your Amiga's screen display on any VGA monitor – for games, for work, for whatever. Then again, if you have this box and a VGA monitor for your Amiga, you may well be able to plug your A1200 directly into the VGA monitor when using the MultiScan monitor drivers which output a signal close to 31kHz (and which provide a resolution of 640 x 480 with very little flicker), and then fall back to the Grand TV-Amazing box when you want to play games or watch TV.

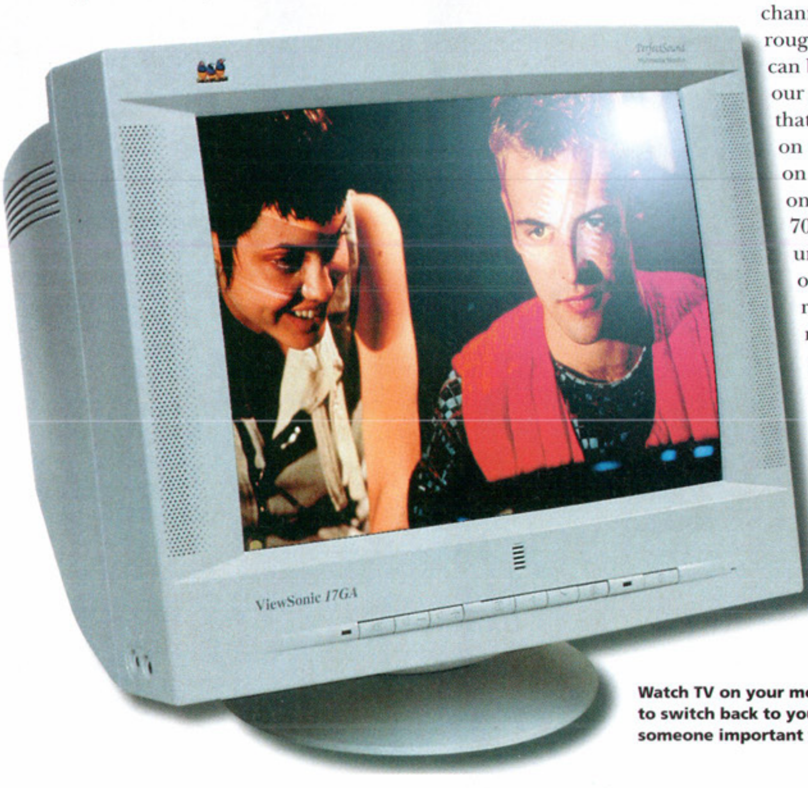
When you're using the Grand TV-Amazing's output for games, the picture is not really any advance on plugging your Amiga into a TV (because that's effectively what you are turning your VGA monitor into), but it does mean that you aren't forced to buy a horrible 1942 or the execrable Microvitec 1438.

If you are one of those people who has a console-type thing, you could also plug that into the same monitor. Plus, you still get the TV tuner side of things.

Actually, talking about the TV tuner, there are a couple of things about it that are nice and some that aren't so nice. Which do you want first?

OK, the bad things. Although you have the standard numeric keypad on the remote, there doesn't appear to be any way to assign a particular channel to a particular button, so you won't be able to have BBC1 on keypad button 1, BBC2 on 2 and so on.

Instead, what happens is that the channel number which TV channels are on is the rough frequency they can be found on. For our area this means that you'll find BBC1 on channel 60, ITV on channel 63, BBC2 on 66, Channel 4 on 70 and (if you're unlucky) Channel 5 on 75. This doesn't really matter too much because pressing the channel up/down buttons only takes you to channels which have been preset, so you should never see a snowstorm on the screen.




Watch TV on your monitor but be ready to switch back to your Workbench when someone important walks into the room.

The nice things are the QV button which allows you to jump directly between two channels (handy if you're waiting for *Equinox* to start but you want to see the news headlines) and the close captioning support.

Close captioning is a bit like having teletext 888 subtitles on your videos. If you look on the back or spines of any videos you've bought recently you'll probably see a logo that looks like a TV speech bubble. This means that this particular video has close captioned subtitles which are normally invisible, much like teletext.

I didn't have my video hooked into the Grand TV-Amazing box at the time of writing this review, so I couldn't really say if this function works or not. However, if it does, it would be a much cheaper solution than buying a standalone close caption decoder.

## I DON'T WANT TO USE COMPOSITE!

**You don't have to. If you can get hold of one of these silver boxes (Commodore part no. 390682-01) then you'll only need to use the composite output when you really have to. As I said earlier, a lot of VGA or cheap multiscan monitors have the ability to show Amiga Multiscan screen modes, so there's no reason to suffer flickery screens. The way you'll work it is that you have the aerial coming into the Grand TV-Amazing box. Next, you should plug your Amiga's composite output into the side input. Lastly, plug the silver adaptor into your Amiga's 23-pin video port and plug the Grand TV-Amazing's adaptor cable into that and into your monitor and the box.**

**Now what you have is the ability, without unplugging stuff, to show your Multiscan display for when you are working, TV for when you should be working, or your Amiga's composite output for when you want to play games.**

**You should try Dart Computer Services, or any other repairer to try and get hold of the Amiga VGA adaptor. Dart can be contacted on 0116 247 0059.**



They came with every A4000, but you'll have to try the repair companies to get one .

**DISTRIBUTOR:** Eagle Direct 0800 7316150
**PRICE:** £84.95 + delivery
**REQUIREMENTS:** None

**SPEED:** ●●●○○
Channel changing is a bit slow.
**MANUAL:** ●●○○○
Little detail where you most need it.
**ACCESSIBILITY:** ●●●●●
Not needed, it's very easy to set up.
**FEATURES:** ●●●●○
Scandoubler, TV tuner, loads of connectors, remote control – what more could you want?
**VALUE:** ●●●●○
The CyberVision Scandoubler is a similar price, so this is great value.
**OVERALL VERDICT:**
Great stuff, but could be improved.

# 83%

# TurboCalc 5

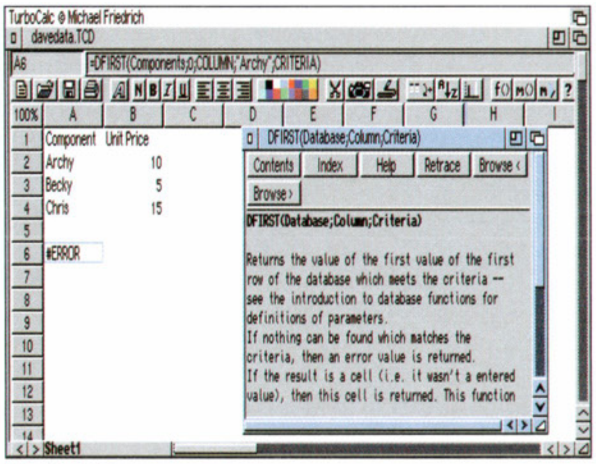
The Amiga's most renowned spreadsheet has been enhanced even further, but have the new features been implemented properly? **David Taylor** finds out.

Many people fall into a deep sleep at the first mention of spreadsheets, but since they are capable of cutting your workload, presenting information you need in a useful format and generating important decision making data, they are one of the most productive things your Amiga can be used for. *TurboCalc 4* offered everything you could ever imagine using in a spreadsheet, or so we thought until version 5 came along.

It is packed with a variety of new features and the one that really caught my attention was the databasing tool enhancements. The ability to interface a spreadsheet with a database would make a remarkably powerful tool.

Think about it. You have a database of your products including descriptions, stock levels and price. Now you have a spreadsheet of sales and perhaps even one of orders. Were it remarkably clever, after a little work you could have your spreadsheet interrogate the database to find the price of a product sold and how many units would be remaining after the sale. In fact, if it could exchange data, it could even automatically ensure both had up to date stock levels.

Between them you would have the sales, orders, stock levels, sales made, profit and total profit. The list is boundless and with it all generated automatically you would have instant data that would take you too long to work out manually. Using this data, you could make more effective decisions about your business, letting you see at a glance if a line isn't selling or if you risk selling out of another.




**The databasing functions are sparse and impenetrable, with little documentation. It's quicker to write complex formulae and ignore the idea of database interfacing.**

## BACK TO EARTH

It all sounds too good to be true, and it is. The database tool, which we haven't previously covered in-depth in reviews because of its limitations, can still only create databases from ranges within the current worksheet. OK, a disadvantage, but not without its uses.

> With no choice over the format, you can end up with HTML that some Amiga browsers can't view.

However, it is a very minor implementation of a database, hard to query, and eventually useless. You would have expected to be able to query a database saved as a worksheet but you can't. The very point of having databasing is to allow you to query the data in a formula and make calculations based on it. For example, if you have sold 10 Acme dolls, you want it to get the price of the Acme doll and then calculate the total price, work out the profit, etc. *TurboCalc* doesn't offer enough functions to make this useful and the new filter doesn't change this.

The functions that are there are dreadfully under-documented. In the last release we complained that the documentation was becoming impenetrable. With only on-line help available, it has to be well cross-referenced with an easy to use search facility, but this isn't.

If you were new to spreadsheets you'd be giving up within minutes. The appendix offers a run-through of new features and the tutorial does help you get started, but, for example, formula entry, quintessential to spreadsheets, is painfully skimmed over. As soon as you want to do anything complex, you find yourself feeling in the dark.

When using v4 it was often a case of loading one of the example files to see how it worked, but the example files for 5 (referred to in the documentation) are missing. An icon for the drawer for Sheets5 exists, but no actual drawer.

As far as the databasing goes, the combination of the lack of decent and easy to use menus, functions and formula commands, with the poor documentation, makes their use limited to the psychic.

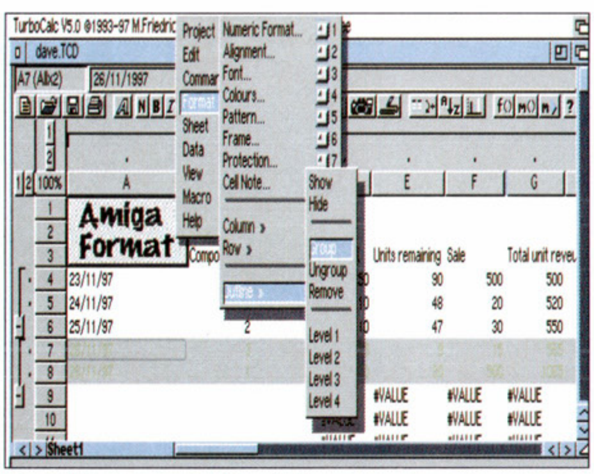
Perhaps if there was a little thought about how people would want to use such a tool then we might see an update that makes it easy. Nobody wants an application that's complicated to use, as this sort of software is supposed to make life easier. The only enhancement to the database in this release is the View Filter.

This allows you to remove from view entries that either match, or fail to match the criteria, but without actually changing the data. It remains in the sheet, but is invisible.

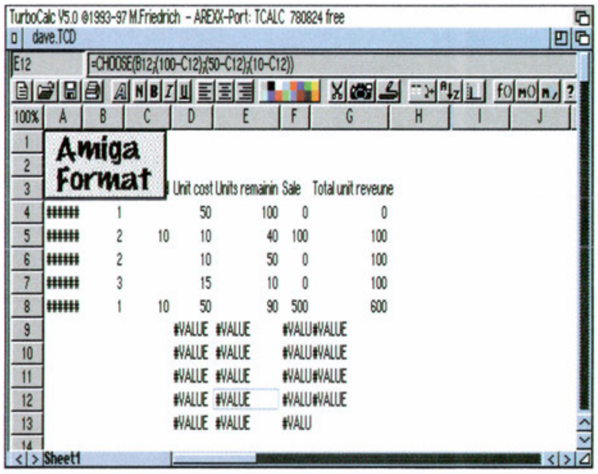
## ONWARDS AND DOWNWARDS

There are many other changes though, so there is still hope. However, the Optimal Width menu that is supposed to quickly format the selected columns seems to simply reduce the column width for no reason. It ends up with titles cut off and, in some cases, not enough room for data to be displayed – all to leave room for some blank, unused columns on the right!

The import filter has been improved to include Excel 5/7 Worksheets and claims to be able to import almost any




**The Outlining is operated through the menu system. A Context menu to access this excellent feature would be appreciated.**




The auto format option for making the columns and rows fit the screen best is a disaster area.

sheet with its formulae. Applied to one of my own sheets containing a set of moderately simple formulae, the program fell over on passwording (fair enough), but even with a normal sheet it didn't import any of the columns with formulae, only pure data.

Ah ha! HTML export. Publishing data to the web is a very useful feature and one that can make it easy to share your information with any number of people. This program should allow you to select a range of cells and export them or export/save the entire file as HTML. Essentially, all it does is take the data and set it in a table.

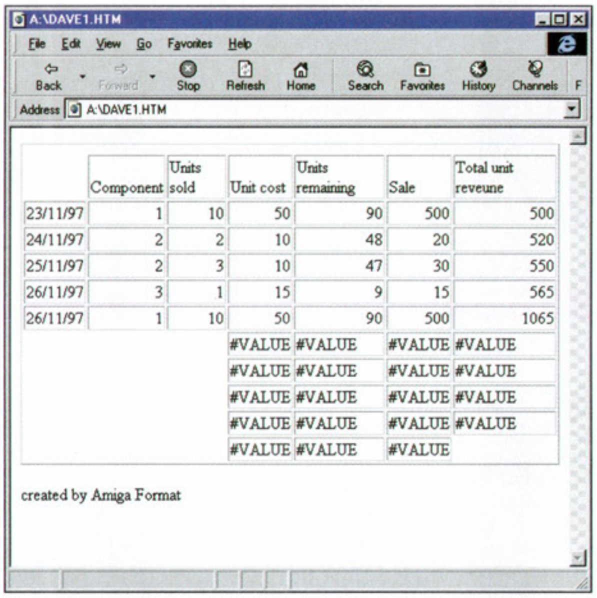
In practice it wouldn't export parts of the sheet, only the entirety, and when it did that it ignored Objects (so you may have placed a nice logo on the sheet, but that won't go). It also doesn't give you any formatting options for borders, specified widths (as you may have intentionally done in a sheet), etc.

It is the briefest, lowest level export possible. If you are an HTML writer then it's a quick way of getting data out that you can then turn into a proper HTML page. It is also another example of people thinking that the addition of HTML support is a good reason for a new release and then only half implementing it. For example, the program doesn't even use the correct suffix when saving, trying to default to .CSV. With no choice over the format, you can end up with HTML that some Amiga browsers can't view. It is so frustrating to see a program shoot itself in the foot like this.

## SILVER OUTLININGS

It is with the outlining tool that *TurboCalc* strikes gold. This allows you to mark up parts of the sheet, or even entire rows, and group them together.

You can then group groups up to sixteen levels. This allows you to take greater stock of a sheet, by seeing only the parts you need. For example, if you have a lot of transactions on one day you will need separate entries, but you may not want to see them all the time – it's enough to know the day is grouped together. When a group is hidden you have a "+" to click on to expand it or, if it is shown, a "-" to hide it. It's a great function that is available on some PC




| | Component | Units sold | Unit cost | Units remaining | Sale | Total unit reveune |
|---|---|---|---|---|---|---|
| 23/11/97 | 1 | 10 | 50 | 90 | 500 | 500 |
| 24/11/97 | 2 | 2 | 10 | 48 | 20 | 520 |
| 25/11/97 | 2 | 3 | 10 | 47 | 30 | 550 |
| 26/11/97 | 3 | 1 | 15 | 9 | 15 | 565 |
| 26/11/97 | 1 | 10 | 50 | 90 | 500 | 1065 |
| | | | #VALUE | #VALUE | #VALUE | #VALUE |
| | | | #VALUE | #VALUE | #VALUE | #VALUE |
| | | | #VALUE | #VALUE | #VALUE | #VALUE |
| | | | #VALUE | #VALUE | #VALUE | #VALUE |
| | | | #VALUE | #VALUE | #VALUE | |

created by Amiga Format

The HTML export is a minimalist affair that allows access to your information by other users of other platforms, but not all Amiga users have a browser compatible with the table format.

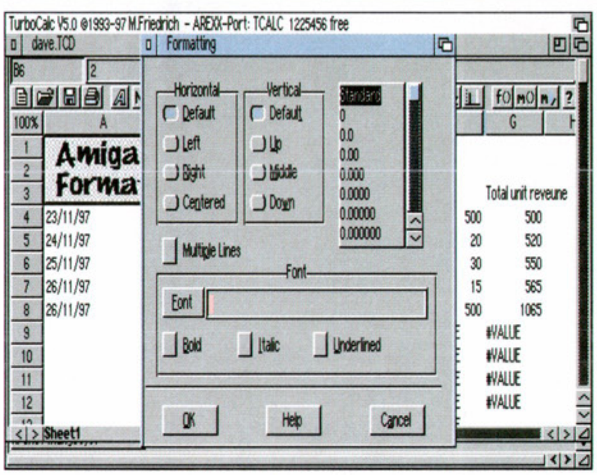
programs and it's nice to see it implemented so well here.

However, the only shame is that to Group or Ungroup you have to go to a submenu. As *TurboCalc* uses context menus accessible from the right mouse button, it seems that this function could have been added to these as well, which would allow much quicker usage.

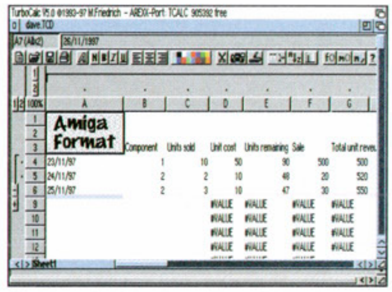
Moving on, there is a new AutoSum function that quickly adds up a selected range and shows it in the status bar (if you have it selected to be shown). The screen refresh has been improved and the clipboard compatibility means you can now get data from other programs into cells quickly. It doesn't work well enough the other way round though, because you can only copy entire cells to the clipboard – you're unable to select part of the cell's data or text.

The QuickFormat function allows you to call up a cell's viewing format from the context menu to make it easier for you to make changes to formatting and font.

The other big change is the




The QuickFormat box is a reasonable addition, but nothing to jump up and down about.




The Grouping function for Outlining is definitely the best addition to *TurboCalc* and should be adopted by other Amiga programs.

improvement of charts, which were a little unwieldy. The chart window now has its own toolbar so you can change the chart from inside, rather than having to go out and change its properties. You can switch between chart types, save, print, and re-title them, etc. Unfortunately, it sometimes seems to have an aversion to switching to pie charts and hangs the machine.

## VERSION 5.1 ANYONE?

This version smacks of missed opportunities and poor beta testing. Other functions don't work as they should (when you change the settings to show the status bar, it should automatically re-size the windows next time you start the program, but doesn't, and leaves the bar hidden so you always have to re-size manually). The templates don't seem to be there at all (another "New Feature" omitted). The database also needs a revamp.

None of this detracts from the fact that this is the excellent *TurboCalc 4* with a few new additions (outlining is very good). Unfortunately, the other additions need bug-fixing and the changes that aren't there, but should have been, need to be added.

**DISTRIBUTOR:** Weird Science
**PRICE:** £69.99
**REQUIREMENTS:** CD-ROM drive, WB2+ and 2Mb RAM

**SPEED:** ●●●●○
Faster than 4, but not enough fast RAM on exit.

**MANUAL:** ●●○○○
Worse, lots to cover, lots missed out.

**ACCESSIBILITY:** ●●○○○
This really needs work.

**FEATURES:** ●●●●●
More features but they need work.

**VALUE:** ●●●○○
Good value, unless they charge for bug fixes.

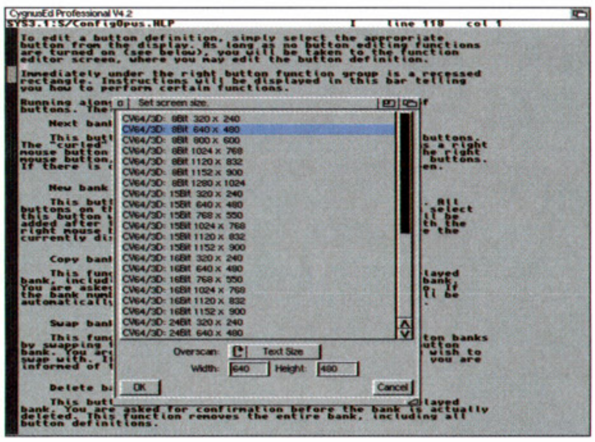
**OVERALL VERDICT:**
Distressingly poor implementation of some good ideas.

**80%**

# Cygnus Ed 4

Rescued from obscurity and celebrating its tenth anniversary, **Nick Veitch** reviews the latest version of his all-time favourite text processor.

Before the days of integrated development environments and "Visual" languages, programmers did things the hard way. And the thing they used to do these hard things was the thing they called *Cygnus Ed*, also known as *CED* if they were rather more intimate.



**Screenmode support has been extended to include all screens in the display database.**

It would be easy to say that *CED* is a basic, no-frills text processor. It is very much a text processor rather than a word processor, or heaven forbid, a page layout program. Don't expect scalable fonts, in-line graphics, style tags or even colour as you'll be out of luck. *CED* owes much more to the *Workbench Ed* program than to *Wordworth*.

However, if you want extremely fast scrolling and searching, up to 9999 undo levels (memory permitting), bracket matching, raw key support, search and replace which recognises special characters, extensive Macro support – in short, everything that makes a programmer's life bearable (unfortunately nobody has written a Macro that will make you some coffee or nip to the shop for a packet of Hob-Nobs) – then *CED* is the one for you.

Speed is probably the main reason why *Cygnus Ed* is so great. With a long document open, click your mouse on the slider and drag it down the length of the screen. Watch that text go. It simply zips past, even on an old A500. The secret lies in the hand-coded assembly language and, of course, a fairly basic screenmode with no extra colours or fancy fonts to muck things up.

One thing that has been changed is the screenmode support. *Cygnus Ed* is now capable of running on a Picasso96 or CyberGraphX screen. Thankfully, this means that you can now run in a mode that might suit your monitor more easily (I have spent months adjusting the vertical size of the screen when using older versions).

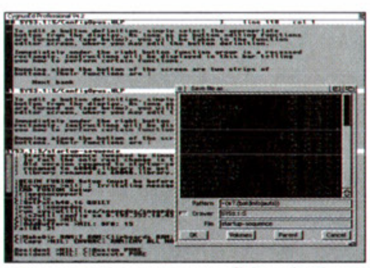
It still doesn't look pretty. In fact it looks much the same as it always did. Even the icons are the same. At least the menus work properly now, even though the whole interface could do with being tarted up just a bit.

Documentation comes in the form of an extensive Amigaguide which is adequate, if a bit skimpy in some areas, like using special characters. Thankfully though, there is some proper documentation for the ARexx port available in the guide.

ARexx can be used extensively within *Cygnus Ed*, and also to link it with other software such as C compilers. There are many macros and ARexx scripts provided with *CED*, most of which centre around this sort of activity.

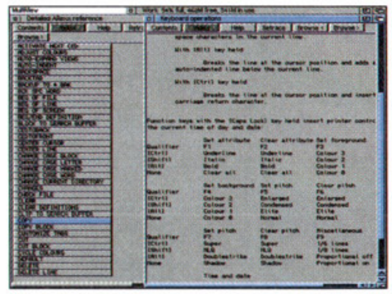
One feature that hasn't changed is the excellent ability to view several documents at the same time, or even more cunningly, to open two different windows on the same document. This is invaluable for debugging lengthy source code and for editing Amigaguide files.

> *It is certainly good that Cygnus Ed has been updated to use RTG screenmodes and more sensible requestors.*



**Multiple views are available and standard requestors are now in use.**

The excellent *recoverCED* program has also been included. This is a fairly simple file which can perform some amazing feats. If you are working in *CED* and your Amiga crashes (which can often happen when programming), this utility can be run after a soft reset. It searches through memory in an attempt to find files which *CED* was working on when the crash occurred, and remarkably it is quite often successful.



**The documentation comes in the form of a reasonably comprehensive Amigaguide.**

It is certainly good that *Cygnus Ed* has been updated to use RTG screenmodes and more sensible requestors. It is good that it is still fast. Perhaps in the next release we can expect to see even more improvements.

I can quite understand why people may favour later versions of *Turbotext* or even *Edge*, but *Cygnus Ed* is still the number one for many of us.

**DISTRIBUTOR: Weird Science**
**PRICE: £24.99**
**REQUIREMENTS: Amiga with WB2 and CD-ROM drive**

**SPEED:** ●●●●●
Faster than fast.

**MANUAL:** ●●●○○
Amigaguide and online help are adequate.

**ACCESSIBILITY:** ●●●●○
Simplicity itself.

**FEATURES:** ●●●●○
A few new features have been added.

**VALUE:** ●●●●●
A small price to pay for excellence.

**OVERALL VERDICT:**
An excellent return from the dead for the Amiga's best text-processor.

**90%**

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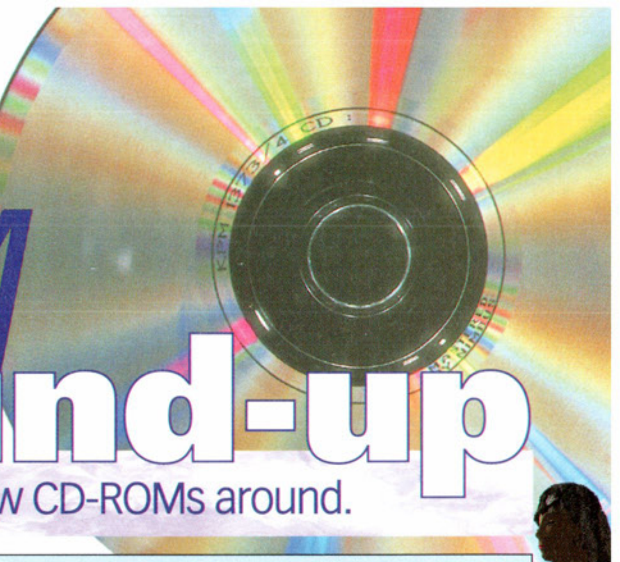
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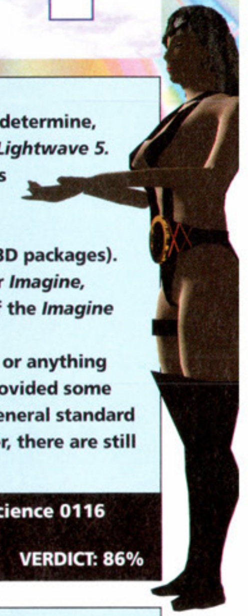
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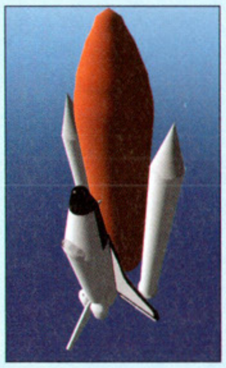
# CD-ROM round-up

**Nick Veitch** gets into a spin over the best new CD-ROMs around.



## LIGHTROM 5

The LightRom collection is probably the best known collection of 3D objects, images and textures. As you might surmise from the title, this is number five in the series, and is actually a whopping triple disk pack.



Essentially, it can also be divided into three sections. The first disk is full of *Lightwave* objects, images, scenes and textures. For ease of use these are divided into original *Lightwave* files, and files for *Lightwave 3.5* and up. Sadly, as far as I could determine, none of the objects support any of the features added to *Lightwave 5.*

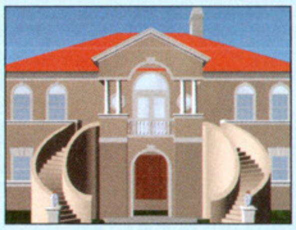


Image maps, backdrops and loads of objects in this three CD collection.

The second CD features a large number of image maps which may be useful for texturing, and a different set of objects from *3D Studio* (which you can load into later versions of *Lightwave,* and are supported by many other 3D packages).

The final CD contains backdrop images and objects for *Imagine,* although many of these have already been seen as part of the *Imagine PD 3D* collection.

As ever with Graphic Detail CDs, there is no front end or anything like that, though as a concession to usability they have provided some index files on this volume. As the series progresses, the general standard of the models seems to have declined somewhat. However, there are still some really great models and textures here, which makes this collection well worth the price for any modeller.

**DISTRIBUTOR: Weird Science 0116 2463811**
**PRICE: £29.95 VERDICT: 86%**

AMIGA GOLD FORMAT

## P.OS PRE-RELEASE

This CD is aimed at people who are interested in the prospect of using a new operating system, as well as people who might like to develop software for it.

To run p.OS, you should install it to your hard drive. A directory will be created on the root of the selected drive and the entire p.OS system will be copied there. The installer also runs a configuration program, selecting the drives to be used by the system, the screenmode, fonts and how you wish to start p.OS.



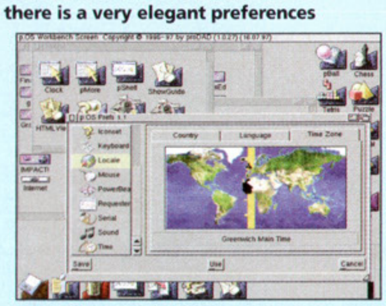
One of the many demos which shows off the capabilities of p.OS.

This operating system is very colourful, with built in support for 256-colour icons. The windows have loads of snazzy effects (which can be turned off, thankfully) and generally runs just a bit faster. If you know how to use an Amiga then you should feel at home with p.OS.

To show off the new system there is a very elegant preferences program and some graphical demos showing the increased speed (when tested on a graphics card) and some things that need to be ironed out, like the screen update.

While the long term future of p.OS as an operating system is by no means a foregone conclusion, it has certainly proved to be workable.

The price of this CD will be deducted from the price of the full version, when available, if you decide to upgrade.

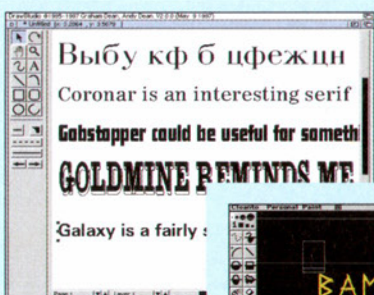


A brighter, happier working environment with the p.OS operating system.

**DISTRIBUTOR: Weird Science 0116 2463811**
**PRICE: £19.95 VERDICT: 91%**

## FONTAMANIA

You want fonts? We got fonts. Whatta kinda fonts you like?

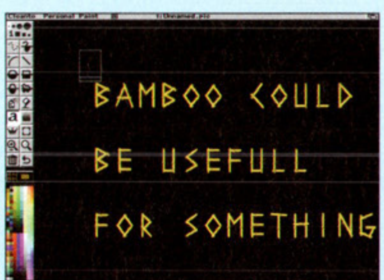



This CD is well named really, as it contains a very large selection of fonts in a number of different formats.

Some of the fonts may not be completely relevant to everyone (there are specific *Pagestream* and *ProDraw* fonts here), but there will be something for everyone. Most people will probably be interested in the 1100+ Compugraphic fonts, which work directly through Workbench.

Unfortunately, a lot of these are quite old. If you have a large collection of fonts then you may find that you already own a lot of these. Also, a number of the fonts appear here in different formats, for example in the Adobe and the CG drawers, so although there are over 10,000 fonts on this CD, they aren't all different. Still, it saves you the time of having to convert them all, even if you have the tools to do that.

Some of the font formats here are not entirely useful for the Amiga. Truetype, for example, is supported by a few packages, but all these packages (e.g. *Wordworth, Final Writer, Pagestream*) also support the more common (on the Amiga) formats anyway.




Not a bad collection, but if you are an enthusiast you've probably seen most of it before.

Fonts for all occasions, although it's quite likely that you'll already have a lot of them.

**DISTRIBUTOR: Weird Science 0116 2463811**
**PRICE: £9.95 VERDICT: 77%**

# Audio Thunder

Audio file conversion has never been easier, according to Nick Veitch.

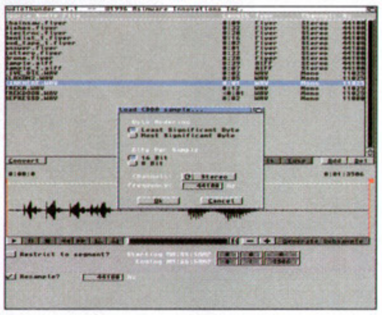
Supplied on CD-ROM with over 400Mb of example files, this software is a file format converter. Although *Audio Thunder* was created mainly to help users of the Flyer, which uses its own proprietary sound format, it's also very useful for anyone dealing in 16-bit sound samples for recording, multimedia or CD-ROM production.

When you start a new project you can choose between a conversion project or a sequence project.

In the first type, you fill the lister on screen with various sound files. A box at the bottom tells you the duration in terms of minutes, seconds and frames (at 30fps).

If you click on one of the listed files, a control panel at the bottom of the screen will appear, allowing you to play the sample and set start and end points for the conversion. Simple resampling can also be done to change the sample rate and once you're happy with your list, click on the conversion button and the files will be saved out in your chosen sound format.

**Conversion is as simple as clicking on a few buttons. You can easily set ranges too.**



*Audio Thunder* supports a range of widely used 16-bit sound formats. This consists of CDDA (as used in CD-production), MAUD, Studio16, WAV, AIFF, Flyer and 8SVX, the common 8-bit sample format on the Amiga.

Asimware plan to increase the number of formats which are supported according to popular demand.

A file in a format that's not recognised will be considered to be a CDDA file by *Audio Thunder*, but you can specify whether it's mono or stereo, 16 or 8-bit, LSB or MSB ordered and the sample rate.

The sequencing project lets you join several samples together and save them out in one continuous sample file. Individual samples can be moved and four different fades and "dead space" can be added to the list to time them properly. They can be in any format, but must be the same frequency and either all mono or all stereo. There is no way to hear the file before saving, which makes tweaking rather tedious.

This is a specialist piece of software that performs a fairly simple task, but does it well. At present there is no other way of converting between so many audio formats with ease. AF

**DISTRIBUTOR: Blittersoft (01908) 261 466**
**PRICE: £59.95**
**REQUIREMENTS: CD-ROM drive.**

**OVERALL VERDICT:**
**Highly useful for those with specialist requirements but it could be improved.**

# 86%

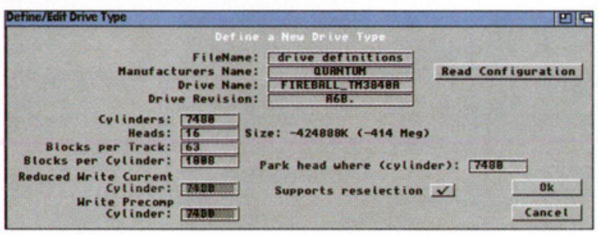
# Quantum Fireball 3.8Gb

AMIGA FORMAT GOLD

When you need room to roam, Ben Vost reckons that a big hard drive is where it's at.

Have you tried buying a hard drive smaller than 200Mb recently? Go on, I dare you to give it a go. You won't find it easy, and, after all, why would you want to?

When hard drives as big as this gorgeous Quantum Fireball are around for less than 200 of your Earth pounds, there's little point in going for anything smaller. And given the compactness of most Amiga programs, compared to those PC tools and OSs that have made hard drives this size a practical necessity, this will be a drive that will last you for a long, long time.




**Don't worry about these figures, the drive is actually fine.**

When you first bung this drive into your machine you'll get a nasty shock because HDToolbox tells you that the drive is only -414Mb in size! Don't worry about this. Even though the part of HDToolbox that reads a drive's configuration gets confused, the rest doesn't, so when you go into the partitioning bit the figures will be fine.

The drive itself is a fine bit of metal. It's very quiet, far quieter than the fan in my machine actually, and speedy would be a very good adjective to apply to it.

The system I'm using it on wouldn't be a good comparison as my previous SCSI drive was as slow as an old dog, so I'd be bound to be impressed by the nippiness of this new drive. But even so, compared to the drive I have at home and to the others in the Amigas around the office, this one is a blinder. AF

## HANDY HINTS

**If you have a hard drive this big you can safely up the block size when you first partition it from the default 512 bytes to a more manly 1024 or more. This will speed up the drive enormously at the very slight cost of making some of your files larger in size. You can also increase the number of buffers you give each partition, but setting this figure too high is counterproductive, as anything under 200 should suffice. Remember that more buffers means more memory used for each partition.**

**DISTRIBUTOR: Golden Image (0181) 900 9291**
**PRICE: £199**
**REQUIREMENTS: IDE interface**

**OVERALL VERDICT:**
**If you're feeling cramped, then you should seriously consider expanding into this beauty.**

# 90%

# DataFlyer SCSI+ Vs Hisoft Squirrel

Thinking of expanding? **Rob Marris** pits the Squirrel against the DataFlyer to see which emerges victorious.

The SCSI interface is the cheapest and most versatile way to add drives of all descriptions to your A1200. CD-ROM, SyQuest and Zip drives can all be added via a SCSI bus, vastly expanding your Amiga.

The market is currently dominated by two such units, the DataFlyer SCSI+ and the HiSoft Squirrel, both of which have their own relative merits.

> *The Squirrel occupies the PCMCIA port, which initially makes the DataFlyer more attractive...*

A new challenger is Power Computing's Viper V board with its built in SCSI controller for under £140, bound to steal a share of this market.

When my DataFlyer stopped working I moved on to the Squirrel, putting me in a very good position to judge which of the two has best stood the test of time.

The Squirrel occupies the PCMCIA port, which initially makes the DataFlyer more attractive because it fits on the internal IDE interface, either on its own or between the computer and the IDE drive (a 25-pin socket replaces the blanking plate next to the mouse socket). However, this is almost sure to prohibit the fitting of a 3.5" drive.

The Squirrel is fitted without invalidating your warranty but you do need a boot disk, which will have to be a floppy if you haven't already opened your Amiga up and fitted an IDE drive.

As mentioned above, both interfaces require software drivers on your boot disk and both come with installer floppies. The DataFlyer also requires an extra patch which allows the internal drive to bypass the interface, and this is installed automatically by the script, which is great if you actually have an internal drive. If you don't (I was booting from a SmartStor in the PCMCIA slot) this patch causes the system to hang every time you boot.

One feature the Squirrel has over the DataFlyer is support for hot-plugging – if you want to alter the configuration of your SCSI chain you can simply pull out the interface, make the changes and plug it back in. The DataFlyer would require a whole system power-down. The actual data transfers of the units are near enough identical.

As far as price goes, the cheapest DataFlyer advertised in *AF* is £49.99 against the Squirrel's £49.95.

The DataFlyer frees up your PCMCIA slot at the cost of the ability to hot-plug your units and fit 3.5" IDE drives (which are now becoming very cheap and much easier to fit). You really need to ask yourself how much you need your PCMCIA slot.

My long term verdict? The Squirrel wins it by a length.

## YOUR REVIEWS

**Have you got any hardware you couldn't live without? Got any that you'd happily chuck in the bin? Write a fair and accurate review of about 750 words and you could see your work appear in *AF*!**

**We will also need some good photographs of the hardware under review and a passport photo of you. Send your reviews to: *Amiga Format*, Long Term Review, 30 Monmouth Street, Bath, Somerset, BA1 2BW.**




We liked the Squirrel and Rob Marris did too!

## BEN'S VERDICT

**There's little doubt that HiSoft's Squirrel is one of the most useful bits of kit that is currently available for the A1200. However, with more and more SCSI controllers coming out for accelerator cards, those that don't mind fiddling inside their machines can free up their PCMCIA port and get an autobooting controller to... well, boot. The DataFlyer is increasing tricky to get hold of these days, but still provides a good solution for people without an accelerator.**

**DATAFLYER SCSI+**
**DISTRIBUTOR: First Computer Centre 0113 2319444 Price: £49.99**

**OVERALL VERDICT:**
**A bit over-priced but it will still get the job done.**

**79%**

**SQUIRREL**
**DISTRIBUTOR: HiSoft 01325 718181**
**Price: £49.95**

**OVERALL VERDICT:**
**Accelerator SCSI boards are becoming a more common, quality alternative.**

**91%**

# It's January Sale time at Golden Image!

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## Ram Boards

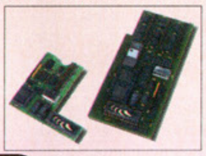
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## Winner of Gold Format Award in Amiga Format February 1997

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| Eight speed CD ROM for | ~~£169.00~~ £149.00 | ~~£139.00~~ £109.00 | ~~£149.00~~ £129.00 | ~~£129.00~~ £109.00 |
| 16 Speed CD ROM for | ~~£189.00~~ £169.00 | ~~£159.00~~ £119.00 | N/A | ~~£149.00~~ £129.00 |

*(for A500/A500+ Alfapower hard drive controller and Hard Drive is required). A1500/A2000 supplied with IDE controller & software. A4000 supplied with AlfaQuatro interface & Full IDEFIX software.

## IDE Hard Drives for A1500/2000

**Hard Drives plus Buddha IDE Controller**
**1.2 Gig ........................ ~~£189.00~~ £159.00 *Starbuy***
**Hard Drives plus Buddha IDE Controller 2.1 Gig ................ ~~£230.00~~ £179.00 *Starbuy***

## IDE 2.5" Hard Drives for A600/1200

All 2.5" Hard drives come formatted and installed with Workbench, including IDE Cable, screws, software and instructions supplied. *(please check for availability)*

**170Mb ......... ~~£85~~ £69 *Starbuy***
250Mb ................ ~~£89~~ £79
**810Mb ......... ~~£149~~ £129 *Starbuy***

Star Buy

## IDE 3.5" Hard Drives for A1200/4000

850Mb ................ ~~£129~~ £105
1.2Gig ................ ~~£135~~ £110
2.1Gig ................ ~~£175~~ £139
3.8Gig ................ ~~£229~~ £199
1.7Gig ................ ~~£155~~ £129
3.2Gig ................ ~~£200~~ £179
*5.0Gig ................ ~~£329~~ £279

We will partition and format Hard drives and install Workbench. *5.0Gig will fit and work on Amiga Computers contrary to warnings given
(Amiga Format Gold Award winner August 1997)

## Memory

4Mb Simms ........... ~~£20~~ £15
16Mb Simms ........... ~~£65~~ £55
8Mb Simms ........... ~~£30~~ £25
32Mb Simms ........... ~~£145~~ £100

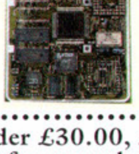
Zip Rams *(suitable for A3000, Alfapower, At-Bus 2008 & Oktagons)* every 2Mb ........................ £40.00

## Accelerator for A1200

Viper MKV 1230 50MHz plus SCSI interface
with 4Mb ........................................ £159.00
with 8Mb ........................................ £179.00
with 16Mb ........................................ £199.00
Viper MKIV 42MHz + 4Mb *(not upgradable)* ... ~~£80.00~~ £70.00

## Accelerator for A600

Viper A630 40MHz + 4Mb *(not upgradable)* ........................ £110.00
Viper A630 40MHz + 8Mb *(not upgradable)* ........................ £120.00



## Miscellaneous Products

Philips monitor to Amiga cable ........................ £6.00
Printer cable ........................................ £5.00
PC Keyboard Adapter ........................ £19.95
SCSI case with PSU ........................ £49.00
Boot selector switch for A500/2000 ................ £10.00
44pin 3 connector cable ........................ £5.00
44pin 2 connector cable ........................ £3.00
40pin 3 connector cable 90cm ................ £5.00
AlfaQuatro 3x40pin Interface & IDE cables ........ £39.95
DD floppy disks (50) *including multicoloured disk labels* ........ £13.00
DD floppy disks (100) *including multicoloured disk labels* ........ £25.00
3.5" Hard Drive Kit for A600/1200 *+ Install software* ........ £15.00
Diskbox to hold 10 discs ........................ £1.00
Animal Jungle design and Dinosaur design ........ £2.00
2 in 1 Scanner/Mouse Pad *Can be used as a memo pad* ........ £3.00
**Amiga Power Supply 4.5 amp ........ ~~£29.95~~ £15.00**
Plain Wristrest ........................ £2.00
GI-Quatro buffered interface with cables but no software ........................ £39.00
A500+ 1Mb ram card ........................ £20.00
A600+ 1Mb ram card ........................ £20.00
ROM Chip for A500 or A600 V2.05 ........ £19.00
**CDROM Drives (Bare) For internal fitting.**
Requires interface and software
IDE 4speed ........................ ~~£49.00~~ £39.00
IDE 8speed ........................ ~~£59.00~~ £49.00
IDE 12speed ........................ £79.00
IDE 16speed ........................ ~~£79.00~~ £69.00

**Super value Software pack:**
DpaintIV + Digita Wordworth3 and Print manager + Dennis and Oscar Games ........ £15.00

**Chaos pack AGA:** 4 great games **(on disks)**
(The Chaos Engine, Syndicate, Pinball Fantasies, and Nick Faldo's Golf). All Amiga Format Gold winners ........ £5.00
Weird Science **3D Images** on CD ........ £5.00
Weird Science **1078 Weird Images** on CD ........ £5.00
**LSD compendium volume 3** over 600mb of PD on CD £5.00

**Audio Cables for CD ROM's**
Stereo jack (3.5mm) plug to 2 x RCA phono plugs 1.2 meter long ........ £5.00
Audio mixer 2 x RCA phono plugs to 2 x RCA phono plugs/sockets 1.8 meter long ........ £6.00
2x RCA phono plugs to 2x RCA phono plugs 1.2 meter long ........ £5.00

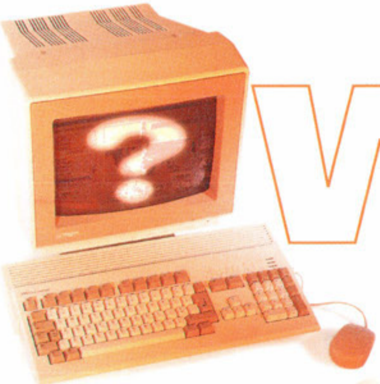
**Multipass OCR Software**
suitable for all scanners and direct scanning support for hand scanners by Migraph, Golden Image, AlfaData and Power ........ ~~£49.00~~ £10.00

**All prices include VAT. Please add £3.50 P&P for items under £30.00, £5.00 for items over £30.00, £8.00 P&P for Scanners, Speakers & Hard Drives, £10.00 courier for next day. Tax Free Export Orders Welcome.**

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# Workbench

For the New Year, Graeme Sandiford resolves to solve all your hardware and software problems. Send your questions to: **Workbench • Amiga Format • 30 Monmouth Street • Bath • Somerset BA1 2BW.**

## MEMORY OVERLAP

My set-up is an A1200 with 1.7 Gig HD (internal), 4x CD and a Gasteiner card in the trapdoor with FPU and 4Mb.

What I would like to do is upgrade my memory from 6Mb to as much as I can afford. The problem is that the CD drive fits into the PCMCIA port and Gasteiner told me that I could not go to more than 6Mb with their card fitted.

If I want to keep my CD and upgrade my memory, could you tell me the best way to go about it?

*Mick Pearson*
*Mansfield*

*Any extra memory fitted to the memory card would overlap the PCMCIA memory locations and cause problems. You'll have to either buy a new memory card which is PCMCIA friendly, or buy an accelerator card (all modem cards are PCMCIA friendly because their memory is in an entirely different location).*

## CORRUPTION

I have a problem with my 3.5" Quantum Prodrive LPS525S SCSI hard drive. The LED light flashes continually and I think the boot selector information has been corrupted. The drive is not recognised by scanning in the ScsiToolsV2.0 and is not recognised by the command "hdtoolbox 1230scsi.device".

I think that the computer was turned off while writing to this drive and I have resigned myself to losing all the games saved on it. But if I can recognise it and reformat it, then I won't have to throw it away.

*Glenn Florey*
*Sittingbourne*

*If the drive is in use all the time then it could be that the Amiga is trying to validate it.*

*Leave it for about twenty minutes to see if it sorts itself out and if the drive is still buzzing away, and none of the HD tools can recognise it, then yes – it could be broken.*

*Check all of the leads, and make sure that the drive is terminated properly if required. You should also try a disk utility such as Quarterback or Amiback before consigning it to the bin.*

## LIES, ALL LIES!

**I recently acquired a 3.5" IDE hard drive (20mb) and intended to use it with my Amiga 600 which is upgraded to 2Mb. I ordered the 3.5" to 2.5" Hard Drive Kit, which included installation software and cables, and a new Kickstart ROM 2.05 chip (v37.300) as mine was v37.299 and therefore unable to run a 3.5" hard drive.**

**Upon running the prepHD script it recognised the hard drive and found RDB at block 0 (having run reselectOn first). It then came to write the partition information and said "cannot write to RDB, write -1 error".**

**I found HDToolBox on the install disk and once again the drive was recognised, so I tried to define the partitions myself. The same error occurred when "saving changes to drive". Then I noticed that the information it had read from the drive was different to that printed on the label on top of the drive.**

**When these values are entered manually into HDToolBox they both add up to 20Mb. I would also like to point out that the install software and HDToolBox refer to the drive as a SCSI device, which clearly it is not.**

**I would like to know if it is possible to get this drive to work with my A600. I may be able to get hold of another 3.5" IDE drive of a larger capacity, so I would like to know what it requires in order for it to work with my computer.**

***Nicholas Sherman***
***Worthing***

***The way IDE works means that it doesn't matter how software thinks the hard drive is configured as long as the final capacity is correct. The drive should work no matter what geometry the software is configured to use. In effect, IDE lies to the Amiga.***

***Also, in a decision which has caused countless thousands of letters to this magazine, the Amiga refers to the built-in IDE interface as SCSI. Ignore it, it's lying too. As you know, it most definitely is IDE.***

***You shouldn't have to touch anything to do with RDBs to get the drive working. HDToolBox should find the drive itself – when you add a new hard drive, click on the "Read Configuration" button and the Amiga will pick the values it needs. You can then create a partition, and exit, saving changes. From AmigaDOS, you can then format the drive and install Workbench.***

***If this process doesn't work, it is possible that the drive isn't compatible with the A600 for some reason. Before spending more money on another drive of limited capacity, consider a modern 3.5" drive as they are much faster and offer better value for money. A hard drive with 20Mb is only just enough to store the Workbench and one or two applications. Of course, housing a 3.5" drive inside an A600 case is a little tricky, but it can be done.***




**The A600 wasn't one of Commodore's better designs, but it will still house a hard drive.**

## MEMORY OVERLAP 2

I bought a CD-ROM some months ago, connected to my A1200 via the Squirrel interface. My problem is that I also had a memory board fitted with all 8Mb configured and the programs started to crash. I didn't know then that you can only have 4Mb or it will clash with the PCMCIA port. My questions are:

1. I have broken a few pins in my PCMCIA slot, so is it possible to get it repaired?
2. If not, would you suggest getting

another second-hand A1200 or an accelerator with a SCSI interface?
3. What would be the biggest hard drive I could get for around £100 (2.5" or 3.5")?

*Carl Handley*
*Denbighshire*

*Some older memory boards map the second 4Mb of memory into the same space as the PCMCIA port. When memory in this location is used the result is often a crash.*
*1. It's very tricky to repair the pins and it may instead require a whole new motherboard. If you have only broken one or two, it's possible these aren't needed and you'll be OK. My A1200 is missing a few pins, but it still works perfectly.*
*2. An accelerator will solve all your problems because the memory won't clash with the PCMCIA port (leaving it free for other peripherals) and the SCSI port will work with your CD-ROM drive. Your Amiga will also be faster, of course.*
*3. Prices are dropping all the time and the problem is now that manufacturers are making drives starting at several Gbs. You should be able to get a bare 3.5" IDE drive mechanism of about 1.2 to 1.7Gb for that amount of money. You'll need to sort out cabling and power though.*

## RADICAL SOLUTION

In *AF104* you told Adrian McKenzie that RAD uses chip RAM and there is nothing you can do about it.

Well, there is. If you use a text editor on the RAD file that is in Devs:DOSDrivers or wherever you keep it, change Unit=0 to Unit=1 and RAD will use Fast RAM instead.

My problem is that I have an A1200, 8Mb Fast 1.3Gb HDD, 4x CD-ROM and 2 external disk drives all packed inside a full tower, with a Star LC100 printer.

I am having problems printing every other line. Do you know what could be causing this? Some days are worse than others. I bought it off a friend without a manual and I can't get it set up properly as I don't know what the dip switch layout is.

Can you or a reader supply me with the correct information on the dip switches?

*Dave Stone*
*Bridgwater*



Tower cases can solve numerous problems, and provide a space for many expansions.

*No, that's not quite right. The Unit number is to enable you to set up multiple RAD drives, and it has nothing to do with the type of memory used by the RAD disk for storage. Nice try, though.*

*If the problem is intermittent, then there is something more wrong than a DIP setting. Try a different cable. Maybe the printer itself is a bit duff? I visited the Star Web site (http://www.curcomp.com/startech.htm) but I'm afraid I couldn't find any mention of the Star 100. Try it yourself, in case one of the printers mentioned here (http://www.curcomp.com/stardoc.htm) are compatible. If it's similar to the MP200, try altering DIP switch 2 as this has something to do with the CR setting.*

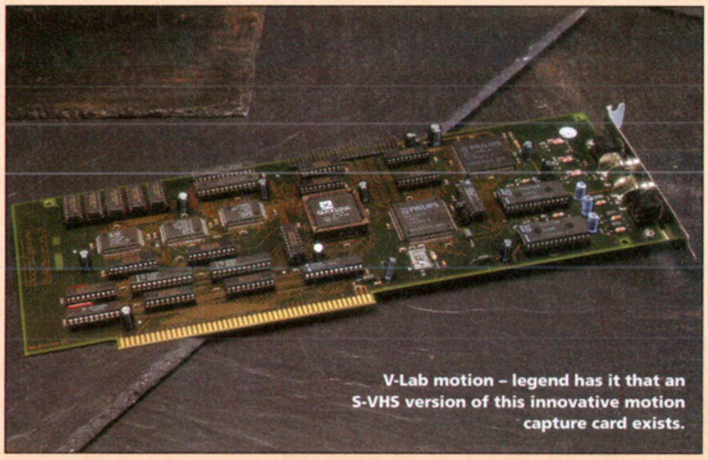
## VIDEO STAR

**I have an A1200 with a 030 board, 8Mb memory, 180Mb hard drive and a double speed Overdrive CD-ROM. I also have an A4000 with a Cyberstorm 060 and SCSI boards, 1.7Gb EDI and 4.2Gb SCI hard drives and a quad speed Gold Star CD-ROM with a Tandem board.**

**Both machines have the same problem. When I turn them on and load a CD, the icon on the Workbench reads CD0:NDOS. If I then re-boot with the CD in the machine, the CD-ROM works perfectly. I have loaded the software correctly (I think). Also, neither CD-ROM will play a music CD. Could you tell me why?**

**After reading your review of *Fusion 2* (*AF104*) could you let me know if it's possible to use the Apple version of the non-linear edit boards by Fast or Miro. If so, what quality do you think could be achieved as I have a V-Lab Motion and can only achieve VHS quality although I am copying direct from SVHS.**

***Ray Young***
***Plumpton Green***



**V-Lab motion – legend has it that an S-VHS version of this innovative motion capture card exists.**




***The version of the CD-ROM File System you are using must be a little wobbly. Try upgrading to the latest version of AmiCDFS from our CD.***

***When you say that neither drive will play music CDs, are you actually using a version of a CDFS or a utility program which will control playback of audio? And if so, have you connected anything to the audio output of the CD-ROM drive? Try a pair of headphones in the headphone jack socket, as it could be that no connection has been made to the drive's audio output.***

***No, you can't use the Apple version of Fast or Miro boards – where would you connect them? These boards are PCI, and not Zorro II or III. I have a vague memory that the V-Lab Motion card was available in an S-VHS version. Maybe someone has a second-hand one to sell.***

## MY AMIGA IS TOO FAST!

I've been having problems with my A1200 for the last couple of months. It started when I bought a 3.5" IDE internal hard drive (Quantum Fireball) and everything was fine until I added an Apollo 1240 card running at 40MHz, 8Mb RAM and an upgraded PSU.

When I attempted to install programs onto the hard drive it would sometimes crash inexplicably, causing bad blocks on the partition which had to be re-formatted. I contacted the suppliers of the card who suggested lowering the Max.Transfer rate. This helped, but didn't solve the problem.

Then they suggested exchanging the 40 MHz card for a 33 MHz one but this didn't solve anything. I then contacted the suppliers of the hard drive who told me that the Apollo wasn't compatible with my Amiga revision (rev. 10.4) but that Blizzard cards were.

I got a refund for the Apollo and tried to order a Blizzard 1240 only to discover they aren't available anymore. In my inquiries about the compatibility of the Blizzard with my motherboard I was told that it wasn't the accelerator card or the motherboard but the length of the ribbon cable on the hard drive that was causing the problems. Apparently, it shouldn't be larger than 3 inches, so the solution was either to get a 2.5" drive or a buffered IDE interface.

Would a buffered interface stop the problem? What caused the problem in the first place? Was it the motherboard or the accelerator card?

I am now left with an A1200 that doesn't have enough memory or speed for most of the programs that I would like to run on it.

*Nicholas Williams*
*Newport*

*The problem could be a combination of all these things: the Amiga operating too quickly for the hard drive, a slight incompatibility problem between IDE interfaces or even the*

**Continued overleaf ➡**

*length of the cable. The fact that everything did work properly before the accelerator card was fitted proves that the hard drive and Amiga both work fine.*

*It's certainly true that the IDE interface in the Amiga is more suited to working over very short cables, but on the other hand I've used systems with 30cm or more of cable and it worked fine. It's almost impossible to predict if the buffer card will make a difference, but if you call up a dealer such as Eyetech they might be able to help you out.*

## ZIPPING ALONG

I have an A1200 with Kickstart 3 and a 40Mb Conner hard disk. I am thinking of buying a Zip drive, and I was wondering whether the Parallel Zip could be used on the Amiga rather than a SCSI Zip. This is because I can get a parallel drive a lot more cheaply.

**Paul Jenkins**
**Isle of Wight**

*Nope, it can't – sorry! The Amiga parallel port isn't up to it. The good news is that the Zip is being upgraded to the Zip Plus, which looks the same but goes faster for PC users.*

*This means you might be able to get a SCSI Zip more cheaply. Keep your eyes open for second-hand deals.*



**Zips are ideal for Amiga users, but the parallel version is incompatible.**

## NO DIALTONE

Having used my modem's fax facilities without any problems using STFAX PD software I have found that since bringing all my computer equipment out to Saudi Arabia (where I work) it has been a different story.

Having purchased the necessary adaptors and trying to run my fax, the message "no dialtone detected" is all I get. Then the software prompts check the line or modem set-up – which is exactly as it was in the UK . The line is functioning normally, so is it possible some modems are for UK use only?

**Nick Ciesco**
**Liverpool**

*It's probably not the modem, but rather the cable which connects it to the wall socket. The UK has slightly different cabling from other countries, which means that if you don't have the right adaptor the modem won't be connected properly. I first discovered this when I accidentally swapped the leads which came with two test modems. One of them seemed to have two pins in the RJ45 plug (the modem end), and the other had four. When swapped around, neither modem would detect the dial tone.*

*One thing you could try is borrowing the lead from a Saudi modem and using that. Otherwise, you'll have to get a new lead made up or try some other adaptors.*

## SPEED UP

Having had an Amiga for a few years, I decided it was time to jazz up the Workbench display. Instead of the plain background I added a picture using WBPattern. My system is as follows: A1200 (WB 3.0), HD, 68030 accelerator with 8Mb RAM and SCSI-2 CD-ROM.

Is there any way I can configure it so there isn't a 1-2 second pause from when the Workbench loads until the picture is displayed as this looks rather amateurish.

**Ian Osborne**
**Beverley**

*The delay is usually caused when the Amiga Workbench tries to remap the colours in the picture to suit the pens it has available. This is quite a complicated process, so a delay is understandable. One thing you could do is try and make the Amiga's job as easy as possible. For example, if your image is a 24bit IFF picture, use a paint program to convert it to 256 shades (or however many colours are in your Workbench display). This often produces better results anyway, especially if you use dithering in the conversion process.*

*Take it one step further, and take a snapshot of the version the Amiga creates and displays. Save this as the backdrop IFF, and you will have minimised the delay as much as possible.*

*There are plenty of little hacks and utilities which look after which pictures appear, and these might also help a little.*

## RANDOM BOOT

I have an A1200 with a Wizard 030 board, Eyetech 4-way IDE interface which connects to an internal hard drive and then out of the back to a tower which houses a CD-ROM drive and another hard drive. I want to know if the sound and backdrop prefs can be made random each time I boot up?

I have a drawer full of backdrops and another full of sound samples, all of which I like. It's just a real pain having to change them manually every few days or so.

**Neil Adams**
**Norfolk**

*Yes. The easiest DIY way is to write an ARexx script which renames the files to the name specified in the preferences settings. The ARexx script could be called at every startup-sequence. There are programs on Aminet that do this kind of thing for you.*

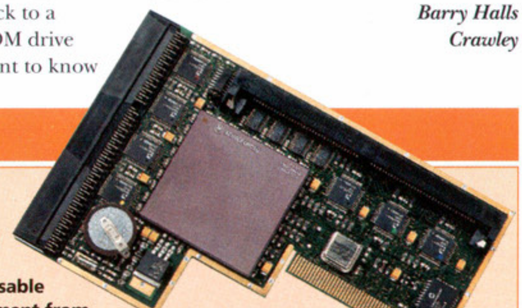
## ON AND ON AND ON...

I own a 500+ with a RAM upgrade to make 2Mb of RAM and the original Kickstart 2.04.

1. What is the difference between Kickstart 2.04 and Kickstart 2.05 and would it be worth upgrading my current version of Kickstart?
2. I currently own two SCSI hard drives both with 216Mb disk space. The only way I have seen to put this on my 500+ is by spending in the region of about £95 for a hard drive. Is there another solution for this, and if so what?
3. Is it worth me buying a Zip drive and a CD-ROM drive or neither, or only one of them?
4. I still have the old power supply which came with the Amiga when I brought it way back in 1991, so would I need another one?

Could some of these problems be the reason why *PPaint v.6.4* and *Nerdkill,* (from your coverdisk *AF91b*) don't work too well?

**Barry Halls**
**Crawley**



## SQUIRREL GOES NUTS

**I own an A1200 which is 3 years old. I have just installed a Blizzard 1260 50MHz accelerator board with 16Mb fast RAM. I have also just got a Squirrel 12x CD-ROM drive with SCSI. The problem starts when I load up a CD. The system crashes unless I disable the accelerator board. The technical service department from my dealer sent me a 060 driver disk on which the Squirrel SCSI is upgraded from the original Squirrel software. The new software stops the CD drive being accepted onto the Workbench. I have also tried changing the device in the Devs/Dos Driver CD0 from DEVICE=CD Device to DEVICE=Squirrel SCSI. Device, which still doesn t work. My dealer thinks it might be something to do with the library being old and not accepting the new additions working together.**

***John Currier***
***London***



***HiSoft's top man and great guy, David Link, tells us: "There is a new Squirrel driver for use with the Blizzard 1260, plus a new, Squirrel-friendly 1260 library on our web pages (under Classic Squirrel/Solutions). This should cure the problem." Thanks David.***

**The Squirrel is a highly useful little animal, but PCMCIA devices can have problems with some types of RAM board.**

# A Quick Guide to...
## MICE AND OTHER INPUT DEVICES

**1** The Amiga mouse is the standard way of controlling the Amiga Workbench. It has two buttons, although some models are available with three. Not all software supports the third button, although some Commodity programs use it as a Shift key – useful when selecting multiple icons.

**2** Always use a properly designed mousemat. Mousemats with amusing pictures of sports cars or supermodels can sometimes have surfaces which are too smooth for a mouse and cause slipping.

**3** Using a mouse on your trousers or the carpet is a really good way to jam up the insides with thread and fluff.

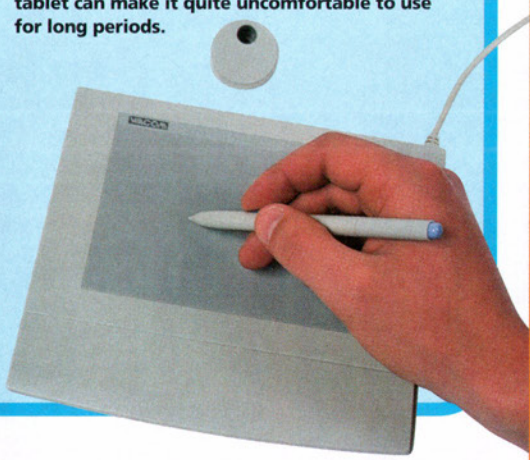
**4** Clean your mouse ball regularly. Unclip the disk on the underside of the mouse, let the ball fall out and then remove the fluff which has gathered inside.

**5** If the mouse continues to slip even when used with a good mat and after a clean, use a cotton-bud dipped in alcohol to give the rollers a really thorough clean.

**6** PC mice cannot be used on the Amiga as standard – look for Amiga specific mice.

**7** If you don't like mice, try using a Trackball instead. This takes more practice than a mouse, but many people prefer them. They take up less desk space, but they also need more regular cleaning.

**8** A graphics tablet can be used to replace the mouse. However, having to hold the tablet can make it quite uncomfortable to use for long periods.



Graphics tablets can be handy for artists, but in this case size is important!

*1. The differences are very slight – so slight in fact that I have no idea what they might be. It really wouldn't be worth the trouble to upgrade the A500 Kickstart at this stage, unless you were contemplating getting 3.1. The money would be better spent on a new Amiga instead.*

*2. You need a SCSI interface. With a SCSI interface you can add many peripherals to your A500, including both SCSI hard drives (assuming you have a means of housing and powering them). However, the A500, as you probably know, has been out for production for a long time. This means that finding a dealer selling a suitable interface is unlikely, so maybe you should place a "Wanted" advert in your local paper instead.*

*Would you consider placing an advert for a second-hand A1200 at the same time? The A1200 is such an improvement over the A500, and it's much easier to expand. Don't spend any more money on an A500.*

*3. Both drives are useful, although a hard drive is better than either of them. I would recommend that you get a CD-ROM drive first, as this will give you access the vast library of software that's available – not to mention the Amiga Format CD coverdisks.*

*4. You would only need a new Amiga power supply if you were adding peripherals which drew power from the computer. External drives such as CD-ROMs and Zips should have their own power supply units.*

*Programs probably don't work because your system is outdated. Many programs now assume a faster processor and more memory than the A500 – not to mention the extra screen modes and Workbench 3 features.*

## EXTRA IDE

I have an A1200 with 1.2Gb hard drive and 8x CD-ROM fitted with an Apollo 1230 Turbo Accelerator Board running at 25MHz. What I would like to do is piggyback two drives by unplugging my CD-ROM and plugging in my spare 540 Mb drive as a data storage base.

I have tried setting one as master and one as slave and have managed to get to the stage where my Amiga accepts the two drives. However, it will only let me access the master.

Do I have to make a Dos driver for the second drive?

*J Ross*
*Fife*

*How you proceed depends on whether you are using SCSI or IDE. I'd guess that all the drives are IDE and that the hard drives are 3.5" models. As you know, IDE allows two drives per interface – the Master and the Slave. This arrangement is not designed to be constantly changed around as the hard drives will get confused, and you'll spend all your time moving the jumper pins.*

*A far better arrangement would be to add a second IDE interface to the Amiga as you could then give the CD-ROM drive an interface all of its own, and Master/Slave the two hard drives. Golden Image sell the GI Quatro Interface which is designed to achieve exactly this, a bargain at £59.95.*

## IF YOU HAVE A QUERY...

At *Amiga Format* we aim to answer as many questions as possible. Unlike some magazines, we don't just concentrate on our areas of expertise – we take on all your problems (as long as an Amiga is involved). Here are a few tips on sending in questions:



Graeme Sandiford

- Be concise.
- Detail the problem as best as you can.
- Describe the events that caused the problem.
- Give full details of your equipment.
- Make sure your question is relevant and wouldn't be more easily solved by contacting the dealer from whom you bought the goods.

Bear these points in mind and fill in, photocopy, or copy the form below as best you can. Unfortunately we cannot reply personally.

Send your letters to Workbench, *Amiga Format*, 30 Monmouth Street, Bath, Avon BA1 2BW.

Your Amiga:

○ A500 ○ A500 Plus ○ A600
○ A1000 ○ A1200 ○ A1500
○ A2000 ○ A3000 ○ A4000

Kickstart version

○ 1.2 ○ 1.3 ○ 2.x ○ 3.x

Hard Disk: .......................... Mb

Manufacturer: ..........................................

Extra RAM fitted – type, size, (Mb) and manufacturer:

..........................................

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Details of other hardware:

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# Amiga.net

Dave Cusick takes a look at the PC and Mac package ***ICQ*** and wonders why a similar program isn't yet available for the Amiga.



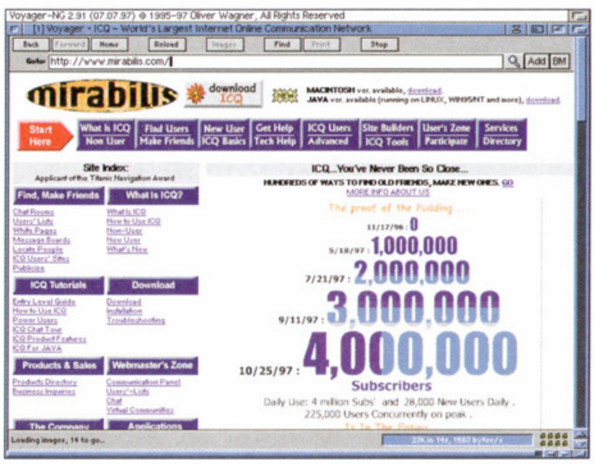

AFCD22:-In_the_Mag-/Amiga.net

## SITES OF INTEREST

**ICQ Site** - http://www.mirabilis.com
**Merapi** - http://ourworld.compuserve.com/homepages/Haage_Partner/e.htm
**QAmiTrack** - http://qamitrack.tibb.at/QAmiTrack.html
**Amiga RC5 Team homepage** - http://homepage.cistron.nl/~ttavoly/rc5

It is one of the many paradoxes in life that while the Internet is a colossal network which brings millions of computers together, actually using a machine connected to that network is often a solitary experience.

Even once someone is connected via their ISP, unless they fire up an IRC or MUD client they will be very much alone in the online ether.

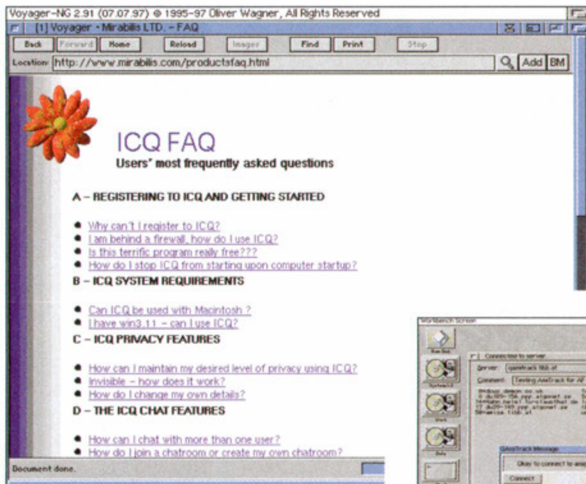



**If you want to download a Java version to try when an Amiga JVM finally becomes available, then take a look at the Mirabilis homepage.**

The Web, the aspect of the Internet which the media are so obsessed with, is almost certainly to blame. In the early days of the Internet, computer users interacted via email or the newsgroups. Nowadays, it is conceivable that a Net novice could spend months online, searching through seemingly endless Web pages full of almost incomprehensible amounts of information on any topic imaginable, before realising that the real value of the Internet is as an interactive communications medium.

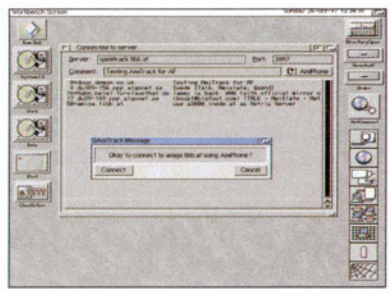
The problem is that contacting Internet friends whenever you go online can be something of a nightmare. Email stumbles here, because one of its greatest virtues – the fact that, as with a telephone answering machine, you can find out what people have to say to you when it suits you, as opposed to when it suits the sender – is also one of its greatest weaknesses. You can email a friend when you go online to tell them that you'd like to chat with them on IRC, but they might not check their email until after you have disconnected, or they might not even have their email client running.

Besides, if you've got plenty of online friends, emailing them all whenever you go online is very impractical, and they won't be too pleased to find their mailboxes full of "I am online now" messages every time they go to check their account.




**The ICQ FAQ explains just what ICQ is capable of. Perhaps an enterprising Amiga programmer could produce an Amiga equivalent?**

So how can you quickly tell whether your friends are online? The solution which a software company called Mirabilis have put forward is to use a dedicated piece of client software, which they have made available for a number of different platforms.



**QAmiTrack might not be able to hold a candle to ICQ in terms of features, but what it does it does well.**

> ... if you've got plenty of online friends, emailing them all whenever you go online is very impractical...

*ICQ* ("I seek you") sits quietly in the background monitoring your system, and whenever you go online it informs a computer at Mirabilis. Your friends online, providing they are using the software too, will then be informed when you connect to the Internet, and you can compile a list of those friends so the software will tell you when they are online as well.

*ICQ* doesn't stop there, though. You can send messages to your online friends at the click of a button, and you can launch various video and audio conferencing software, hold group discussions, transfer URLs to your friends for them to take a look at, start

## CRACKING THE CODE

**If you haven't checked the news section of the Amiga Web Directory recently or noticed some of Ben Vost's pieces over the last couple of issues, you may be unaware that a bunch of dedicated Amigans have been trying to make a name for their beloved machine in the world of computerised code cracking.**

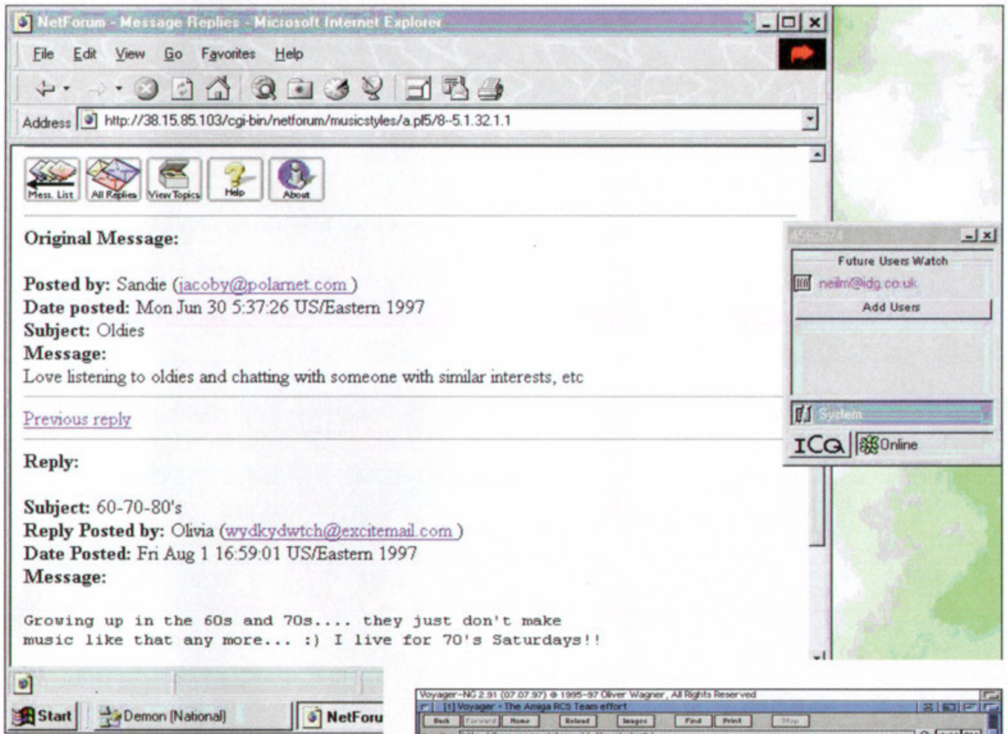
**In this case, the cracking taking place has been perfectly legal. What the Amiga RC5 team have been trying to do is help prove that the RC5 encryption system, currently used for secure data transfer over the Internet, is simply not strong enough – and hopefully earning some much needed publicity for the Amiga in the process.**

**With the correct 56-bit RC5 key being just one of 72,057,594,037,927,936 possibilities, the Amiga team decided to become a part of the larger Bovine cracking effort. The decision to opt for the Bovine effort as opposed to one of the rivals was based as much on the fact that this group were leading the cracking race at the time (and are one of only two teams to have produced an Amiga cracking client), as on the recent purchase of Amiga Technologies by the cow-obsessed Gateway 2000.**

**Anyway, on October 21st (just two days ago at the time of writing), a chap called Peter Stuer at the STARLab Bovine Team based at the Vrije Universiteit in Brussels, Belgium, managed to discover the correct key. He was running a Windows NT on a Pentium Pro 200 workstation. The cracking effort had been running for 212 days and 47% of the possible keyspace had been eliminated.**

**However, although it wasn't an Amiga which eventually uncovered the correct key, the Amiga RC5 effort has been a resounding success. Despite only being involved for 63 days, the Amiga RC5 team managed to crack more than one million blocks (that's 269,000,000,000,000 keys) to finish seventh overall, and were third in the daily rankings on the day before the correct key was discovered. Thomas Tovoly, the chap responsible for the Amiga RC5 effort, has worked out that a single A4000/060 would have taken around 80,000 years to have cracked so many keys.**

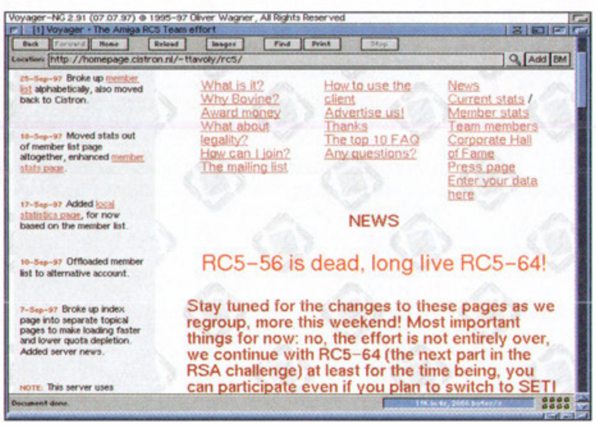
**So where now for the scores of code-cracking Amiga netizens? Well, although there are some interesting sounding projects on the horizon, in the short term it seems as though Bovine are making available RC5-64 cracking clients. RC5-64 is a 64-bit encryption system, making it 256 times more difficult to find than the original RC5 encyption key. Although as I write there isn't yet an RC5-64 cracking client for the Amiga, by the time you read this the new effort should be well underway. Take a look at the Amiga RC5 team page to find out how you can get involved.**




**The excellent *ICQ* in action on my, erm, other machine.**

up online gaming sessions and much more. When you download and install *ICQ*, you register with Mirabilis and are assigned a unique Universal Internet Number (UIN), which people can use to find you online, although you can also search to see if your friends have registered by entering their email address or full name.

So why haven't all the Amiga Internet users out there got *ICQ*? The answer is that, unfortunately, the software isn't available for the platform and the chances of Mirabilis producing a port are practically non-existent. By all means bombard Mirabilis with pleas for a conversion (or at least, pleas for them to grant permission for an independent Amiga programmer to produce one), but don't hold your breath. With *ICQ* using proprietary technology, it isn't likely that a licence to produce an official port would come cheaply.




**The Amiga RC5 Team homepage, shortly after the news broke that the correct key had finally been found.**

Amiga owners wanting to use this sort of system therefore have two practical choices. The first is to hope that a Java Virtual Machine such as Haage and Partner's forthcoming Merapi will make it possible to run the Java version of *ICQ* on an Amiga.




**The Bovine homepage at Distributed.net is where cracking clients are available for those who want to join forces with the Amiga cracking team.**

Whether it'll work properly remains to be seen, but it will certainly be interesting to give this a try when Merapi becomes available.

The second is to use a separate, Amiga-only program that performs a similar role to *ICQ*. At the moment, that probably means Jeremy Freisner's *QAmiTrack*, which disappointingly few Amiga Netheads seem to have heard of, let alone use regularly. As with *ICQ*, the idea is that you download and run the client, which informs a remote server whenever you go online. *QAmiTrack* then presents you with a list of other registered online Amigans, who can each post a brief message, such as "Available for a game of Battleduel", or "Amigacafe on Undernet".

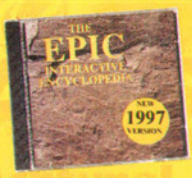
It's a very simple system, scarcely on a par with Mirabilis's elaborate Web-based message boards and flashy client, but at least it can let you know when your fellow Amigans are online.

## CONTACT POINT

**I can be reached with comments, suggestions and feedback at dave@dcus.demon.co.uk, or via my Web site at** http://www.dcus.demon.co.uk/.

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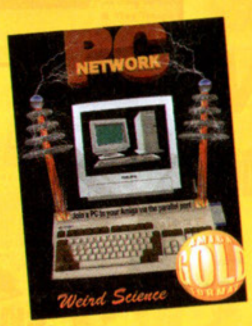
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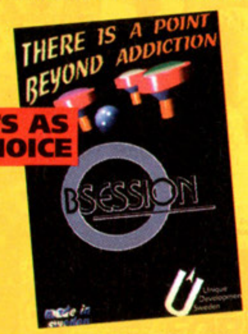


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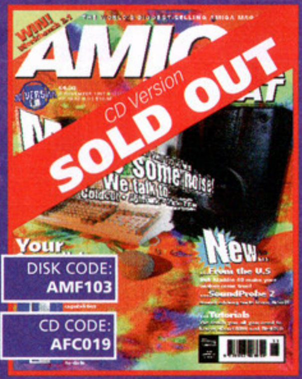
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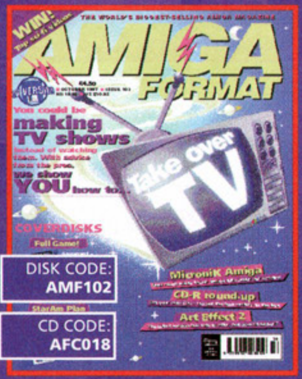
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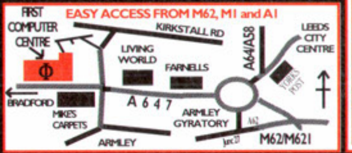
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# CREATIVE



We've come to the end of the line for our controversial Beginner's guide, as Robert rounds off the series this month. We've had a lot of comments on the series, both from people who found it helpful and from some who took great exception to it.

Of course we know that there haven't been any Amigas readily available for ages, but that doesn't mean there aren't new users. Many people have picked up second-hand Amigas, or have been passed down various bits of equipment from older brothers or sisters.

It does sadden me that so many people didn't want it to appear – what has happened to the friendly and open Amiga community which was always only too pleased to help? Anyway, it's finished for now, so there's no need to write in and complain.

Next month we start a new, short series of tutorials on a variety of subjects, starting with how to create an Amigaguide file quickly and easily. See you then.

**Nick Veitch**

## SEND IT IN!

### WE NEED YOUR INPUT.

Is there something that you would like to see covered in one of the current tutorial series? Why not send your suggestion to us at the magazine. Here are some things you might like to think about:

**AREXX**
Commodore's excellent decision to include ARexx with Workbench was only matched by their stupidity in not documenting it properly. If you are having trouble why not write to us with a description of what you are trying to do.

**PAINT PACKAGES**
Unsure of how to get a particular effect? Do you think there must be an easier way? Our experts could help.

**DRAWSTUDIO**
Is there something you desperately want to be able to draw? Drop us a line! Contact us at:

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Or email: amformat@futurenet.co.uk
putting "Creative" in the subject line.

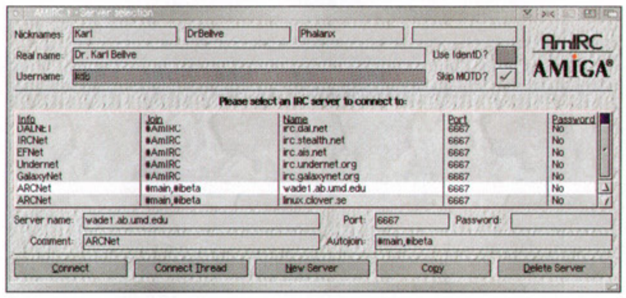
## The indispensable guide to getting the most out of your software





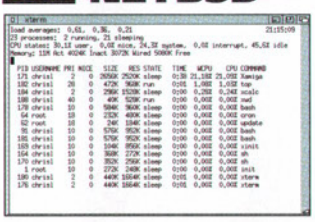
Ooer. How did he do this then? Well, you'll be pleased to discover that it's all very easy.

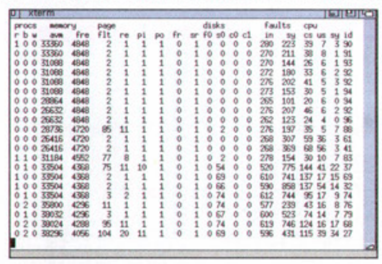




A list is just a list and unless it has some hooks, clicking on any of the items won't actually do anything.

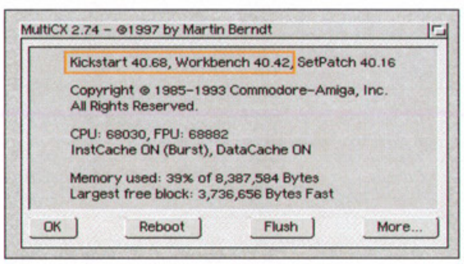


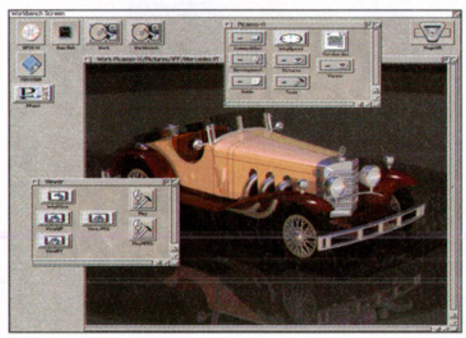




It all looks like columns of numbers – the joys of writing scripts!

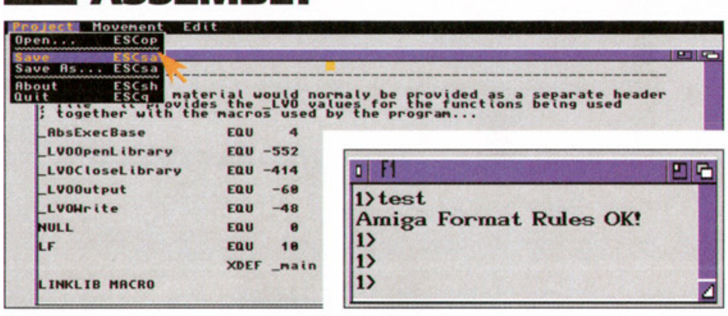




How to work out what you've got and make the best use of it in the Beginner's Guide.






68k assembly language may seem arcane, but it is super fast.

# DrawStudio

**Larry Hickmott** continues his look at ***DrawStudio*** with some cutting tips on using the extra special Make Compound Object tool.

## Contents



Like most tools in *Drawstudio*, Make Compound Object has many uses and in this month's instalment of being creative with the Amiga's foremost illustration package, I want to show you a trick or two using this rather effective feature.

Make Compound Object sounds pretty boring but as you can see from some of the examples on this page, this simply isn't the case.

Creating compound objects is simple enough. All you need are two or more elements where one object will be the "fill" while the other will form the "cutout" or hollow bit.

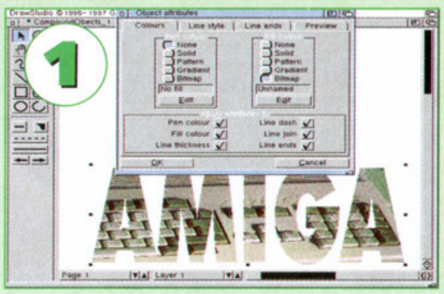
It's important to remember that *Drawstudio* does not distinguish between which objects are the holes (or cutouts) and which objects are filled, but there is a rule which says that the attributes from the first selected object become that of the compound object as a whole.

Remember that compound objects themselves can be used with other compound objects to create something new, and where the elements don't overlap there won't be any cutout – the multiple objects will become "welded" together, forming a single element.

Now you may not exactly be jumping up and down with excitement about my abilities, shown by what I've created for these pages, but I do expect you to be able to see the possibilities of what you can do yourself using this tool.

When using *Drawstudio*, one of the key points about being creative is to

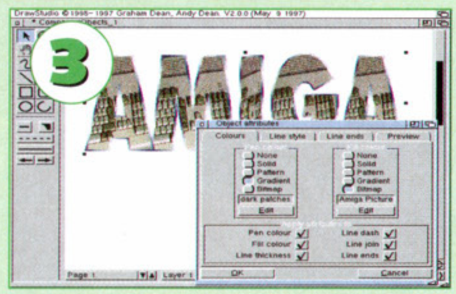
## CREATING ONE OBJECT FROM MANY



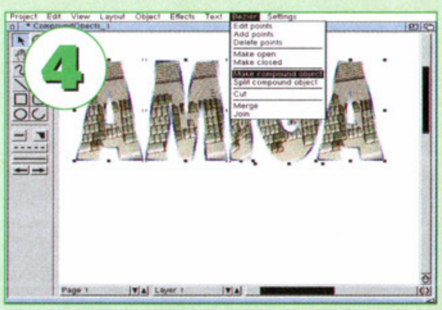
Create some text and apply a bitmap fill to it using the Object/Attributes panel. Notice that in this example the bitmap fills the whole word. Not only that, but because the text is still a text object, no line weight can be applied to it – which is not what we want in many cases.



To add a line weight to the text, we need to first convert the filled object to a bezier curve by choosing from the Object menu the item Convert to/Bezier. Notice how the fill is now applied to each of the letters instead of the whole word as before. We will correct this in a minute.



Plain text like this looks really flat on the page, so we'll change this by giving it a line weight. Do this by making sure the text object is selected and then from Object/Attributes, click on Gradient in the Pen Colour column. Choose or create a gradient by first clicking on Edit, then choose a gradient from the list or click on Edit again in the Gradient List to create or edit a new one. Apply the gradient to the text object.



The problem still exists whereby the bitmap still only fills each letter. To alter this, first choose Object/Ungroup, make any changes to the spacing of the letters if required and then choose from the Bezier menu Make Compound Object. As you can see, the bitmap now fills the whole object.



As a final taster for you to play with, double click on the object and you will see the fill disappear (for editing purposes only) and lots of little boxes on the image. These are points which can be moved around the page to change the shape of the object.



## MAKING A CUTOUT




Making what is known as a cutout is really simple in *DrawStudio 2*. For this tutorial, you will need a few objects: a rectangle, some text and a blurred version of that text. The latter can be created by exporting a bitmap version of the text and blurring it in *ImageStudio, Personal Paint, ImageFX, Art Effect* and so on.




Take the text (not the blurred bitmap) and convert it to a Bezier object and then ungroup the word so each letter is a separate object. With each of the letters selected, move the text over the top of the filled rectangle.




Click on the rectangle containing the fill and then hold down the shift key. Now click the left mouse button on all the letters of the text. It is done in this way so that the fill is not lost. If the text is selected first then the bitmap fill would need to be re-applied. Choose Make Compound Object from the Bezier menu.




At the moment, all you have is a rectangle with some white looking text, which is actually clear because the white background is showing through. To prove the point, take the bitmap blurred text and place it under the compound object.




Place the blurred bitmap under the compound object and you should get an effect like this. The glow around the edges is also useful but in some cases you may want to avoid it. This is done by cropping the edges of the blurred image before placing it on the page in *DrawStudio.*

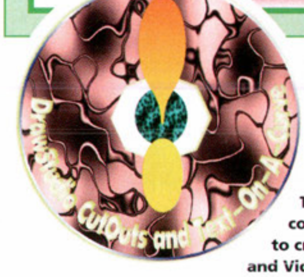


This effect of having a blurred object under the compound object can also be used another way. Try this. Create a compound object as before but without the blurred text and then make a clone of the object.




Select the clone, give the object a solid fill and export it as a bitmap and blur – the more blur the better. Some applications blur outward, and there's little white space to expand into when exporting an object so use a larger white rectangle behind exported objects to avoid cutoff. Put the blurred image on the page and delete the original clone.



The Make Compound Object tool can be combined with others like Text On A Curve to create logos and so on for WEB pages, DTP and Video projects.




This image is made up of a number of elements including a compound object, some gradients behind the compound object, an editing of the rectangles to create irregular shapes and a grey shadow behind some of the text.

experiment by taking one function like Make Compound Object and using it in combination with other features like Text On A Curve or Warp, and also to play with as many different types of elements and fills as you can think of. This is what makes *Drawstudio* 2 such an interesting package.

In this tutorial, we'll look at two ways the Make Compound Object tool can be used. One is to create things called cutouts and the other is to combine a number of objects so that the fill is applied to all of the objects in the group as if they were a single element.

> **What makes DrawStudio different is that compound objects can be filled with bitmaps...**

Producing cutouts is not new. *ProDraw,* for example, was capable of doing a similar thing with its own Compound Object function but what makes *Drawstudio* different is that compound objects can be filled with bitmaps, which is very useful when creating titles for web pages, newsletters and video projects.

Have a go at the tutorials and see for yourself how it all works. If you don't have a copy of *Drawstudio* 2, give me a call on 01908 370 230.

# Magic User Interface

Caught out by MUI hooks? **Dr. Karl Bellve** explains everything in part four of this tutorial.

## Contents



My previous tutorials covered the concept behind MUI programming and how to build a simple interface. I haven't yet explained how you integrate the interface with your program. A method called MUIM_Application_ReturnID is a crude but simple way to do this. You can attach this method, through a notification, to any MUI object. Here is an example of it through a notification:

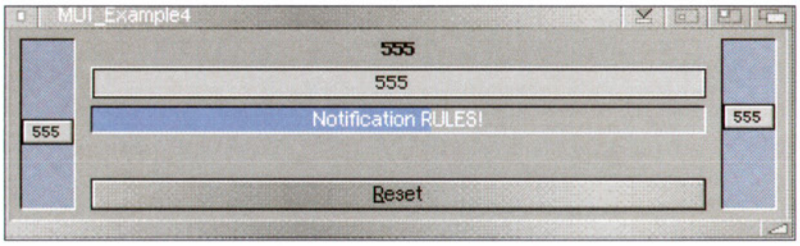
```
DoMethod(buttonobj, MUIM_Notify,
    MUIA_Pressed, FALSE, appobj, 2,
    MUIM_Application_ReturnID,
    ID_PLAYBUTTON);
```

Every time buttonobj is pressed and released, a notification event is triggered. Notifications were discussed in last month's tutorial. In the above example, MUIM_Application_ReturnID passes the id, ID_PLAYBUTTON, to the next call of MUIM_Application_Input, which is located in your program's event loop. Somewhere in your program, you would have defined ID_PLAYBUTTON as a number. In C, it would look like the following:

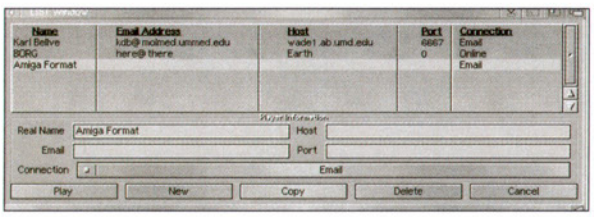
```
#define ID_PLAYBUTTON 1 #define
ID_STOPBUTTON 2
```

Your program's event loop would then need to look for this ID and perform an action. In this example it would look like the following:

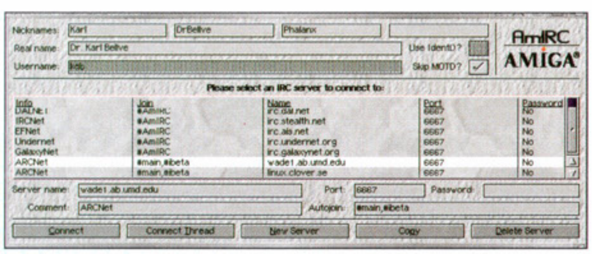
```
while (running) { switch
(DoMethod(appobj,MUIM_Application
_Input,&sigs)) { /* Quit the
Program */ case
MUIV_Application_ReturnID_Quit:
running = FALSE; break;
case ID_PLAYBUTTON: printf("You
want to play?..."); break;
case ID_STOPBUTTON: printf("You
want to stop?..."); break; } if
(running && signal) Wait(signal |
SIGBREAKF_CTRL_C); if (signal &
SIGBREAKF_CTRL_C) break;
}
```




**MUI_Example5 shows a complex listview using hooks. This listview has multiple columns, vertical bars and column titles. Also, the listview contents are completely controlled by the string gadgets below it through a complex set of notification events. The main part of the program does nothing to generate this.**




**MUI_Example4 has only one subtle difference from MUI_Example3. The string object was unable to notify and change the slider objects or the gauge object in MUI_Example3. MUI_Example now uses an Amiga callback hook attached to the string gadget that converts the string contents and updates the slider and gauge objects.**




**AmIRC's server selection window is a fine example of a complex listview. This listview is controlled in real time by each change in the string objects and buttons below it. In this example, you can also see a background pattern in the listview.**

You are allowed to use any long word for your IDs, except from -255 to 0. These are reserved for MUI. For example, MUI defines the following in mui.h:

```
#define
MUIV_Application_ReturnID_Quit -1
```

When your event loop sees a -1, it should cleanup and exit. Many programs link their main window with this ID to shut down the program when the user has closed the main window. In the above example, when your program sees a 1 (ID_PLAYBUTTON), it knows the user has selected the button, buttonobj, as shown in the above notification. Here the program just prints something, but you could also make function calls, or modify other MUI objects.

As I said before, using ReturnIDs inside a MUI program is very crude but simple. It is not very object oriented and everything is forced through your program's event loop. There are two other ways to link functions in your program to MUI objects. One way is by using hooks. The other way is by using subclasses of the object (which we will cover next month).

You need to read the RKM libraries for a full explanation of callback hooks. I will just provide a working example in this limited space.

You may have noticed that in the example program, MUI_Example3 from last month, there was one crucial notification event missing. If you changed the string gadget in that example, it only updated the text object above it. It didn't update the slider objects or the gauge object. Slider and gauge objects are subclasses of the

numeric class. Unlike the text object, they can not receive a string. Also, if MUIA_String_Integer attribute was gettable, as well as settable, then this problem would have been solved. You could then take the MUIA_String_Integer and pass that to the other objects. However, this is not gettable, and only settable. I could only get the attribute MUIA_String_Contents, which returns a pointer to a string. The way around it is to call an Amiga callback hook when the string gadget is changed.

You can get around this problem by linking an Amiga callback hook to a MUI object, like the string object. To show you how to link a hook to a MUI object, I will modify MUI_Example3 and call the revised code MUI_Example4.

First, I will need to initialise a hook structure. To remind you, the hook structure is defined in utility/hook.h as the following:

> **... using ReturnIDs inside a MUI program is very crude but simple. It is not very object oriented...**

```
struct Hook {
struct MinNode h_MinNode;
ULONG (*h_Entry)();
/* assembler entry point */
ULONG (*h_SubEntry)();
/* often HLL entry point */
APTR  h_Data;
/* owner specific */
};
```

The hook structure I have defined in MUI_Example4 is basically just a pointer to my function:

```
static struct Hook
stringtoint_hook  = {{NULL,
NULL},(void *)String_to_Int,
NULL, NULL};
```

I have just filled the hook structure with a pointer to my function. H_MinNode is meant to string hook structures together, but is not often used in MUI. MUI has a method for attaching hooks to objects called MUIM_CallHook. Here it is in practice:

```
DoMethod(App.string1,MUIM_Notify,
    MUIA_String_Acknowledge,
MUIV_EveryTime, App.label1,4,
MUIM_CallHook,&stringtoint_hook,
App.slider1,MUIV_TriggerValue);
```

Every time the string gadget changes, the stringtoint hook is called as shown in the above method. This hook has the pointer to the function that gets executed. You can pass any number of parameters to your function. Here I am passing the pointer to the slider1 object and the MUIV_TriggerValue.

Remember, you must always use the keyword __saveds when you define your function. Register a0 will contain the pointer to the hook itself. Register a2 will contain the pointer to the calling object, in this case, the string object.

The parameters will be passed on the a1 register. The example function, in MUI_Example4, only cares about the parameter list and doesn't need anything else. It reads the MUIV_TriggerValue, which is a pointer to the contents of the string object.

I could have looked at the a2 register and read the string contents directly using a get(object,MUIA_String_Contents,string), but I didn't have to.

I also pass the object I wanted to send the result to. I could have passed either slider, or the gauge object. I could have used the same hook function to change each object separately, but once the hook function had modified one slider object then that slider object notified the other objects itself, due to a network of notifications already set up.

After a simple example of using Amiga callback hooks and returnIDs, you are ready to start programming a fully fledged MUI program. Try to avoid returnIDs where possible, but if it's the only way you can understand programming in MUI, then go for it.

Eventually, you will learn to make your program more object oriented. Stay tuned for next month's tutorial on classes and subclasses.

## MUI LISTVIEWS AND THE TROUBLE THEY CAUSE.

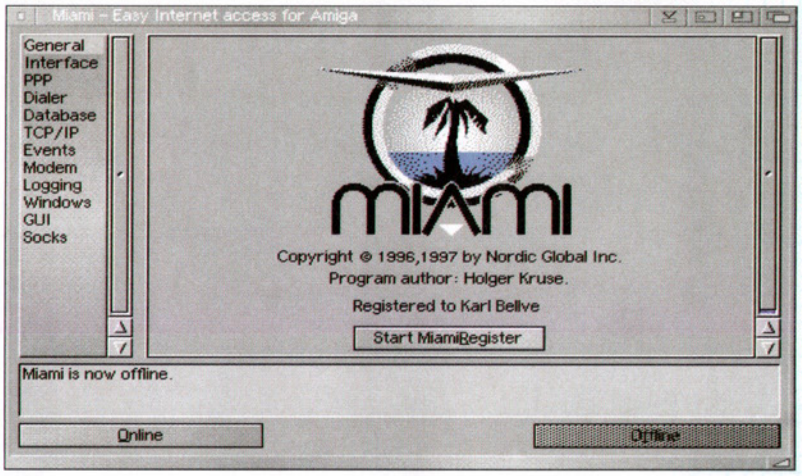
**New programmers to MUI always have difficulties with MUI's listview object. First, a listview object always has a list object as a child, and it is the list that is manipulated. The listview just displays the list. To extend the functionality of MUI's listview object, you need to use hooks. An ordinary listview does not need hooks, as long as you only expect it to display only strings. If you want a listview that has columns and can vary its format, then you need to use hooks.**

**MUI listviews can use four hooks. A construct hook to allocate memory, MUIA_List_ConstructHook. A display hook to display the list, MUIA_List_DisplayHook. A compare hook to sort the list, MUIA_List_CompareHook. And, a destruct hook, MUIA_List_DestructHook, to release the memory allocated in the function called by the construct hook.**

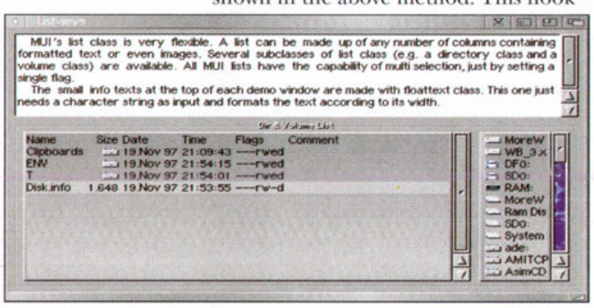
**MUI_Example5 has an example of a complex listview. The code may be too much to digest but take time to look through it. Not only does the example show how to use a listview but also shows how to localise an Amiga program.**

**The listview in MUI_Example5 has 5 columns. Each column also has a title, setup by the display hook. Additionally, the columns are separated by vertical bars. I would suggest reading MUI's autodoc on MUI_List and pay attention to the hook attributes and especially to MUIA_List_Format. This is the attribute where you specify widths, formatting and bars. One helpful hint with this attribute is that you should have one less comma than columns in your listview. You must have this attribute set if you have a multicolumn listview with hooks, passing just commas is fine.**

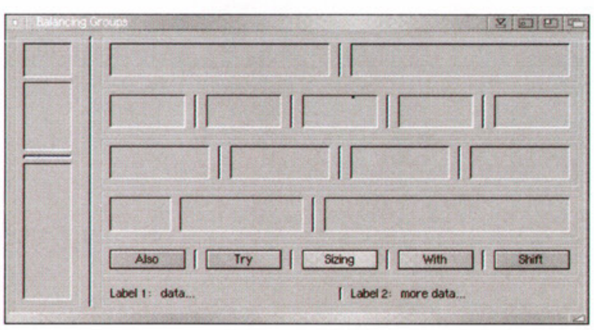
**MUI_Example5 goes a bit further, the listview is updated in real time as each string gadget is updated. Normally, you would only update another object after the user has hit the return key. Vaporware's AmIRC server list also has this behaviour. It is up to you how you update your list but hopefully this code will get you started.**




**Many programs now use listviews to control the size of a program and limit the growth of the GUI. The MUI preference program is one example and Miami, shown, is another. Miami has a listview on the left. When any item in the listview is selected, the area to the right content is changed.**




**If you run the MUI-Demo program and select the listview, you would see this window. You are not limited to showing text in a listview as lists can also contain images.**




**MUI contains many jewels. Balancing objects are one of them. Balancing objects allows for resizing of groups and objects by the user. Run the MUI demo program called Balancing to test balancing objects.**

# NetBSD

ON THIS MONTH'S CD AFCD22:-In_the_Mag-/NetBSD

**Chris Livermore explains simple script programming in the Shell in part four of our tutorial.**

## Contents

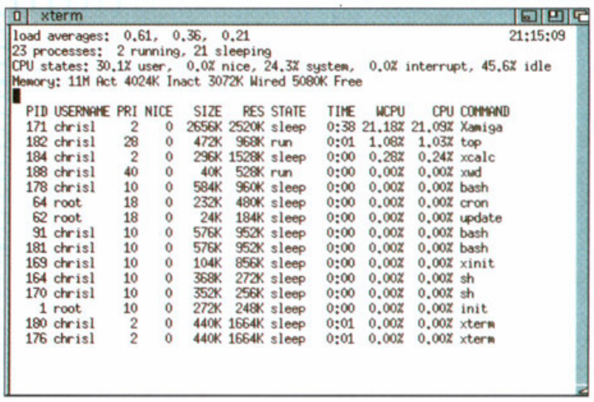


Over the course of these tutorials we've been gradually adding more applications to make the NetBSD environment more user friendly and more like that of other desktop operating systems.

However, no matter how hard we try, it's almost impossible to move away from using the Shell completely. This is especially true from a system administrator's point of view.

For those of you that want to make a career in computing but dread the thought of using Windows all day, Unix provides the perfect answer.

Those of you who have less ambitious plans and just want a Unix environment at home will still have to perform some administrative tasks from time to time, which invariably means having to use the Shell.




**Top combines the ps and vmstat commands into one easy to understand interface.**

NetBSD comes supplied with two Shells pre-installed, "sh", the basic Shell, and "csh", the c-Shell which most of you will be using. While csh is fine for day to day use, it is very difficult to write scripts in, a point we'll cover later.

On this month's CD we've provided three new Shells. tcsh is similar to the csh Shell but features tab completion. zsh (the Z Shell) and bash (the Borne Again SHell) have more in common with the korn Shell, and they both feature tab completion too.

Each of the Shells has its own strengths and weaknesses. c-Shell variants are easy to use for everyday tasks whereas korn Shell-style Shells tend to be suited to slightly more complex commands. Korn Shell programming is also useful to know because some system files must be written in korn notation. tcsh and zsh are provided pre-compiled on the CD with installation scripts. Only the source code for bash is on this month's CD so you will have to compile it first. I'm going to be using bash for the rest of this article, although you can probably use zsh for most of the examples here.

As you are using the Shells, you may find certain aspects of them that you wish to change slightly. Each Shell has a configuration file which you can use to tailor your working environment to your needs. For bash and zsh users life is fairly simple because there is only one config file (see box out) to worry about. For csh and tcsh users, there are 3 files you will need to configure.

The first is the .login file. This is read every time you log into a machine.

> *For those of you that want to make a career in computing... Unix provides the perfect answer.*

It is recommended that you define any Environment Variables here, as they are automatically passed to sub Shells and include any commands that you want to run every time you log in, such as checking for mail and news.

The next file is the .cshrc. This is read every time you start a Shell and should contain Shell variables like prompt and any aliases you might require. Finally there is a .logout file which is executed when you close a login Shell, so if you want to run any commands when you logout then this is the place to put them. If this all sounds a bit confusing, don't worry as there are example configuration files on this month's coverdisk.

As I've said before, Unix is a very powerful operating system and most of this power can only be accessed through the Shell. The most common way of doing this is to write Shell scripts.

These are text files that contain a list of instructions that the Shell executes. The only difference between writing a script and typing the commands into the Shell itself is that you only need to type a script once.

The power of the Shells lies in the way commands can interact with each other. There are 2 main ways this occurs. The first, and most commonly used is a pipe (|). When two or more commands are separated by a pipe symbol the output of the first command is fed into the second command. For example, the command "ls -l | wc -l" will tell you how many files are in a directory as ls -l produces a directory listing with one file per line, and wc -l counts the number of lines in a file.

By combining them using a pipe, wc can be used to count the number of lines in a directory listing, and thus the number of files.

The second way commands interact is for one command to execute another command as part of it's arguments. For example "cd 'echo /'", which is a long winded way of changing to the root directory. In order to see exactly what we can achieve with the Shell we'll look at two example scripts. Both are simple Shell scripts that perform tasks that would be difficult to do otherwise.

## Listing 1

```
#!/bin/sh

for f in *.txt
do
mv $f `echo $f | tr [A-Z] [a-z]`
done
```

The first script (listing 1) converts files from uppercase to lowercase, and uses pipes, nested commands and loops.

The first line in any Shell script tells NetBSD which Shell to use to interpret the script. This does not have to be the same as the Shell you are currently using. Lines 2, 3 and 5 for a for loop.

The Shell will scan the current directory for any files ending in .txt. For each file that it finds it will assign the value of the variable $f to that file name and execute the contents of the loop, between the "do" and the "done". Line 4 forms the body of the loop and does the real work. If you look closely you will see that it is nothing more complicated than a simple mv command. The first argument of the mv command is $f, which for each pass of the loop contains the name of a .txt file.

```
xterm
procs   memory      page                         disks          faults      cpu
r b w   avm    fre  flt  re  pi  po  fr  sr f0 s0 c0 c1   in   sy   cs us sy id
1 0 0 33360   4848    2   1   1   1   0   1  0  0  0  0  280  223   39  7  3 90
0 0 0 33360   4848    2   1   1   1   0   1  0  0  0  0  270  211   38  8  1 91
0 0 0 31088   4848    2   1   1   1   0   1  0  0  0  0  270  144   26  6  1 93
0 0 0 31088   4848    2   1   1   1   0   1  0  0  0  0  272  180   33  6  2 92
0 0 0 31088   4848    2   1   1   1   0   1  0  0  0  0  276  202   41  5  3 92
0 0 0 31088   4848    2   1   1   1   0   1  0  0  0  0  273  153   30  5  1 94
0 0 0 28864   4848    2   1   1   1   0   1  0  0  0  0  265  101   20  6  0 94
0 0 0 26632   4848    2   1   1   1   0   1  0  0  0  0  276  207   46  6  2 92
0 0 0 26632   4848    2   1   1   1   0   1  0  0  0  0  262  123   24  4  0 96
0 0 0 28736   4720   85  11   1   1   0   1  0  2  0  0  276  197   35  5  7 88
0 0 0 26416   4720    2   1   1   1   0   1  0  0  0  0  268  307   59 36  3 61
0 0 0 26416   4720    2   1   1   1   0   1  0  0  0  0  268  369   68 56  3 41
1 1 0 31184   4552   77   8   1   1   0   1  0  2  0  0  278  154   30 10  7 83
0 1 0 33504   4368   75  11  10   1   0   1  0 54  0  0  520  775  144 41 22 37
1 0 0 33504   4368    2   1   1   1   0   1  0 69  0  0  610  741  137 17 15 69
1 0 0 33504   4368    2   1   1   1   0   1  0 66  0  0  590  858  137 54 14 32
0 1 0 33504   4368    3   2   1   1   0   1  0 74  0  0  612  744   95 17  9 74
0 2 0 35800   4296   11   1   1   1   0   1  0 74  0  0  577  239   43 16  8 76
0 1 0 38032   4296    3   1   1   1   0   1  0 67  0  0  600  523   74 14  7 79
0 2 0 38024   4288   95  11   1   1   0   1  0 74  0  0  619  746  124 16 17 68
0 2 0 38296   4056  104  20  11   1   0   1  0 69  0  0  596  431  115 39 34 27
```

**vmstat.gif will show you exactly what your machine is doing with its disks, CPU and memory.**

The second argument is slightly more complicated. The commands enclosed by back quotes are executed each time around the for loop, and the result forms the second argument to the move command. To understand how these commands interact with each other, it is helpful to see each part of the script in action. The first argument to the mv command can be found by

## Listing 2

```
#!/bin/sh

PATH=/bin:/usr/bin

df -k -F ufs | tail +2 | while read disk zz zz zz cap mount
do
if test `echo $cap | sed -e "s/%/ /g"` -gt 97
then
echo "$mount filesystem almost full"
fi
done
```

typing the following: `for f in *.txt do echo $f done`, which will display all .txt files in the directory.

To see what the second argument to mv will be, use the following commands: `for f in *.txt do echo $f | tr [A-Z] [a-z] done` which will convert all these filenames into lower case. By combining these scripts, we can convert file names from upper to lower case.

The second script, which produces an error message if any filesystem is more than 97% full is slightly more complicated, but it should be easy to figure out what is really going on if you examine each command separately.

One of the more complex NetBSD commands, sed (Stream EDitor), is used in this script. It removes the % sign from the value for the disk capacity, so it's easier to compare with another number.

While the first script is designed to be run only occasionally when the need arises to convert files, the second script should be run on a more regular basis. It may be that you want to run it as part of your login script, but if your machine is always running you may not log in and out very often. To make sure that the script is run on a regular basis you should make use of NetBSD's scheduler "cron". This provides a mechanism for executing commands at specifically set times or intervals.

The cron information is stored in a file known as a crontab which can be manipulated with the crontab command. Be careful though, as simply typing crontab will destroy any existing entries. You should use crontab -l to list the content of the file and crontab -e to edit it. The crontab -e command uses the EDITOR environment variable to determine which editor to invoke, and will default to vi if this variable is not set.

## HOW TO SPEAK NETBSD

**GUIDE TO PRONUNCIATION**

| | |
|---|---|
| CSHRC | = KUSH ROOK |
| ~ | = TWIDDLE |
| #! | = HASH |
| BANG ETC | = ET SEA |
| USR | = USER |

While it is possible to create crontab entries for each individual user, administrative tasks like our diskspace script would normally go in the root crontab. Each time cron executes a command it usually emails the output of that command to the user that ran it.

For commands running as root, it is usually more convenient to email the output to a normal user. In the case of our disk space checking script this would only require minor changes. The most elegant solution would be to change line 6 to read: echo "$mount filesystem almost full" | mail chrisl.

To stop crontab mailing the output of this script to root add `>/dev/null 2>&1` to the end of the command. This redirects the standard output and standard error produced by the script to /dev/null, NetBSD's trash can.

Another task many systems administrators perform regularly is monitoring which processes are running on the machine. This is usually to investigate a loss in performance. As a typical NetBSD system can have many users and also runs many programs in the background such as networking daemons it can be difficult to determine exactly what the processor is doing.

NetBSD comes complete with commands such as ps, which lists the processes running on a machine and vmstat which can give a running report on disk, memory and CPU usage.

To see which processes are taking up valuable CPU time, an external command such as "top" must be used. Top is included (pre-compiled) on this month's CD. It shows you the top processes, in terms of CPU utilisation, but is notorious for almost always appearing near the top of this list itself!

You will already have performed many of the other common administrative tasks, such as adding users and installing applications, as part of the NetBSD installation and previous tutorials, and you will find NetBSD has a large array of commands that you can use to create your own scripts.

If you want to learn more about scripting, Shells and Unix in general, a book such as *Unix Power Tools* by Jerry Peek, Tim O Reilly and Mike Loukides, published by O'Reilly/Random House, will be indispensable.

## GLOSSARY SH-

**THE BOURNE SHELL (Named after Steve Bourne, it's creator).**
**The original Unix Shell. This Shell can be found on all Unix systems, so is perfect for writing scripts.**

**CSH – The c Shell, developed by Berkeley. It is very popular as an interactive Shell, but has a lot of hidden bugs, making it hard to program successfully.**

**KSH – The korn Shell (named after David Korn, it's creator). Based upon sh, the korn Shell is a standard part of system V Unix implementations.**

**BASH – The Bourne Again SHell, developed by the Free Software Foundation, bash is a non-standard Unix Shell similar to the Korn Shell.**

**ZSH – The z Shell is another non standard Shell similar to the Korn Shell.**

**SYSTEM V – One of the two main dialects of Unix, System V was developed by AT&T and has given rise to many other versions of Unix including Solaris. The other main unix development stream is, of course...**

**BSD – Berkeley Software Distribution Unix, developed at the University of California, Berkeley. BSD has also given rise to many other flavours of Unix including Irix and Linux.**

# Beginners Guide

In the final part of this series, **Robert Polding** explains all about expansion.

## Contents



In the final part of our Beginners Guide we will be looking at expansions. This is a very wide-ranging subject that covers everything from adding a disk drive to a 64-bit graphics card. The type of expansion you want will depend on which machine you have. Different Amigas can accept different types of expansions, the most expandable being the 'big-box' machines such as the A4000. If you have an A1200 or similar machine, fear not as there are solutions to the limited expansion space which you have available.

Back in the July '97 issue there was a feature on increasing expansion space through Tower systems, which involved moving the parts of the A1200 into a larger casing and adding slots for expansion cards (the Zorro system).

> **The day of the floppy is now numbered as the market has become flooded with (reasonably) low cost drives.**

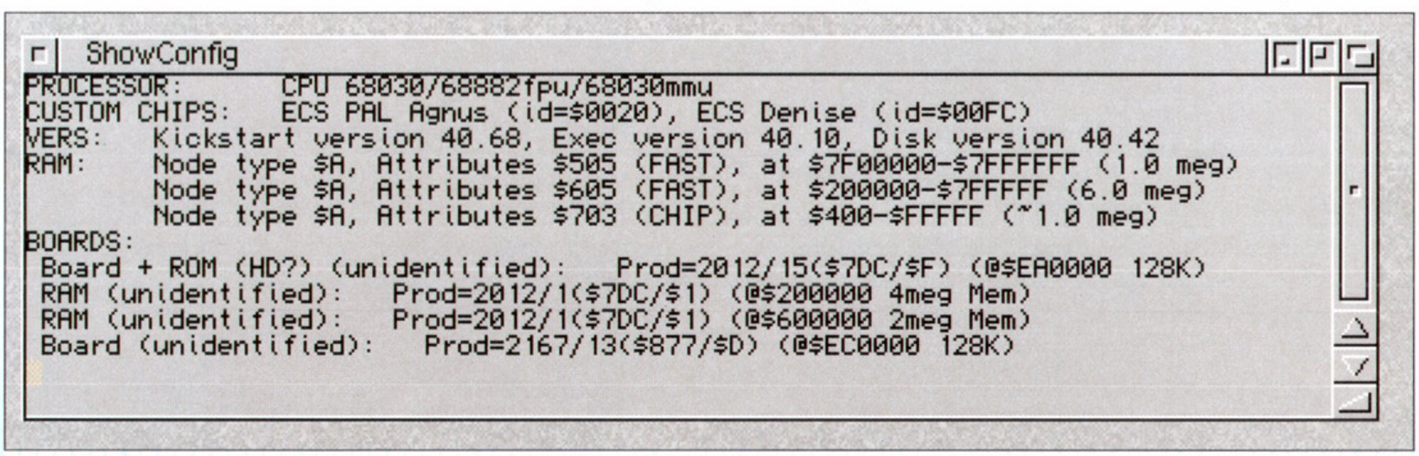
Doing this means you can expand your computer in the same way a big-box owner can, by adding Zorro cards.

If you scan through the adverts in this issue you will see there are many cards available. Graphics cards are one of the most popular expansions, and possibly the most useful. They allow you to use screenmodes that would otherwise be unavailable, and an incredible number of colours (about 16 million). The screens that use the cards (especially the 64-bit cards) are also incredibly fast and can be used in a variety of applications and games. They can turn your Amiga into a true graphics workstation and eliminate the restrictions of colour and screen that make Workbench look so dated.

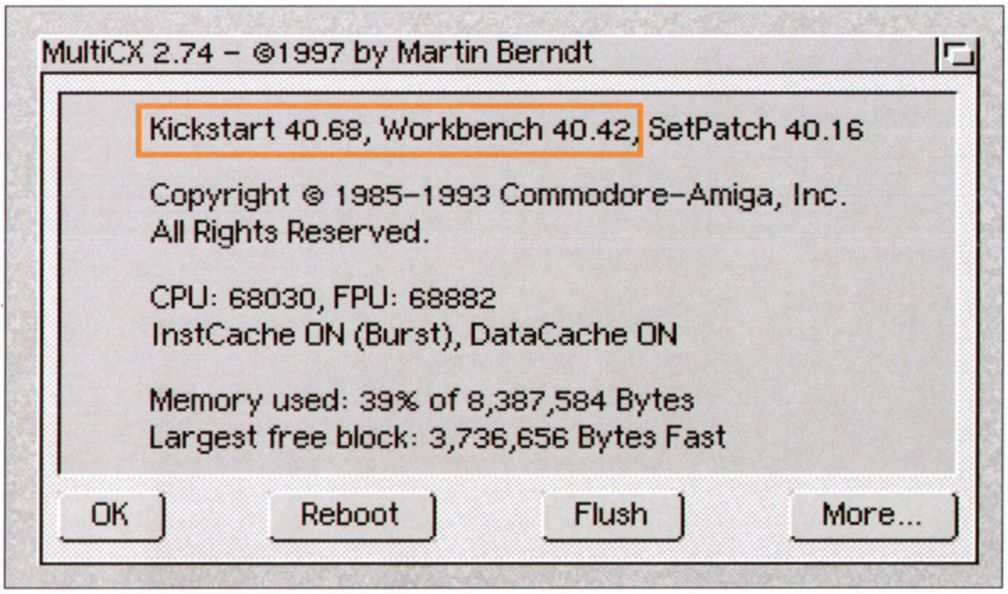
The screens are also fast enough to allow full-screen animation and MPEG films. These boards used to be out of the average user's price range, but now you can snap up the incredible Cybervision 64/3D for about £140.

There is a variety of other cards available, from serial expansions to accelerators. There are cards that add new controllers, such as IDE and SCSI ports, as well as sound cards and even networking hardware. These types of expansions are becoming more popular, and more are becoming available, specifically ones that allow the Amiga to compete with the PC in areas never reached before. An example would be the new Golden Image networking board, Connexion. This was covered in *AF102* (news), and it allows the Amiga to be networked in the same way that PC networks are in schools, perhaps grabbing the Amiga a slice of the market. It allows small businesses to share resources too, accessing files from different machines for example.

Accelerators are becoming essential, as slower machines can't keep up with the level of advancement that software is reaching. To use an accelerator you don't need a big-box machine, although there are new PowerPC accelerators available that can run up to 200 MHz that do require a CPU slot. For about £350 you can use a




**The Workbench 'Showconfig' command gives some useful information on your hardware.**




**Many Shareware utilities can improve the look of Workbench and enhance the way it works.**

68060 processor in an A1200. This would mean incredible increases in speed (about five times the speed of an A4000), and allow your Amiga to achieve its true potential.

Installing these types of accelerators is also very easy as they simply slot into the trapdoor expansion, and even give the ability to add up to 192 Mb memory!

Adding memory is another area that needs to be addressed. If you expect to get by with the standard 2 Mb then you're dreaming! Memory is now dirt cheap and by adding 6 or so Mb your Amiga will never moan again.

Software is becoming more reliant on systems with extra memory – Wordworth needs 4 Mb just to run now. If you want to go on-line with the Internet you'll need extra memory (and an accelerator is recommended).

If you've been using a version of Workbench below 3.0 then you'll be missing out on a large selection of software that is specifically designed for it. You also won't be able to take advantage of graphics cards and easy screenmode selection. The upgrade price now ranges from £30-50, but you may need to get a technician to install the chips and this will cost more.

Extra drives could give you masses of removable storage. The day of the floppy is now numbered as the market has become flooded with (reasonably) low cost drives.

The ZIP drive is a good example. For about £180 the unit allows you to use 100 Mb disks, and even comes with several disks. CD-R drives are now available for about £350 that allow you to create your own CDs, so you never need to worry about disk space again.

> **"The costs are fairly minimal when you consider the benefits to your system and to the Amiga community..."**

Monitors are now a requirement for a PC as users wouldn't expect to use low-resolution screens. The Amiga, however, has for years been confined to low-resolutions due to the use of TVs and out-dated monitors. By investing in a Multi-sync monitor you can have beautiful, high resolution screens, which are essential if you're considering a graphics card. Once you've seen 800x600 in 16 million colours without a headache-inducing flicker in sight, you'll never look back!

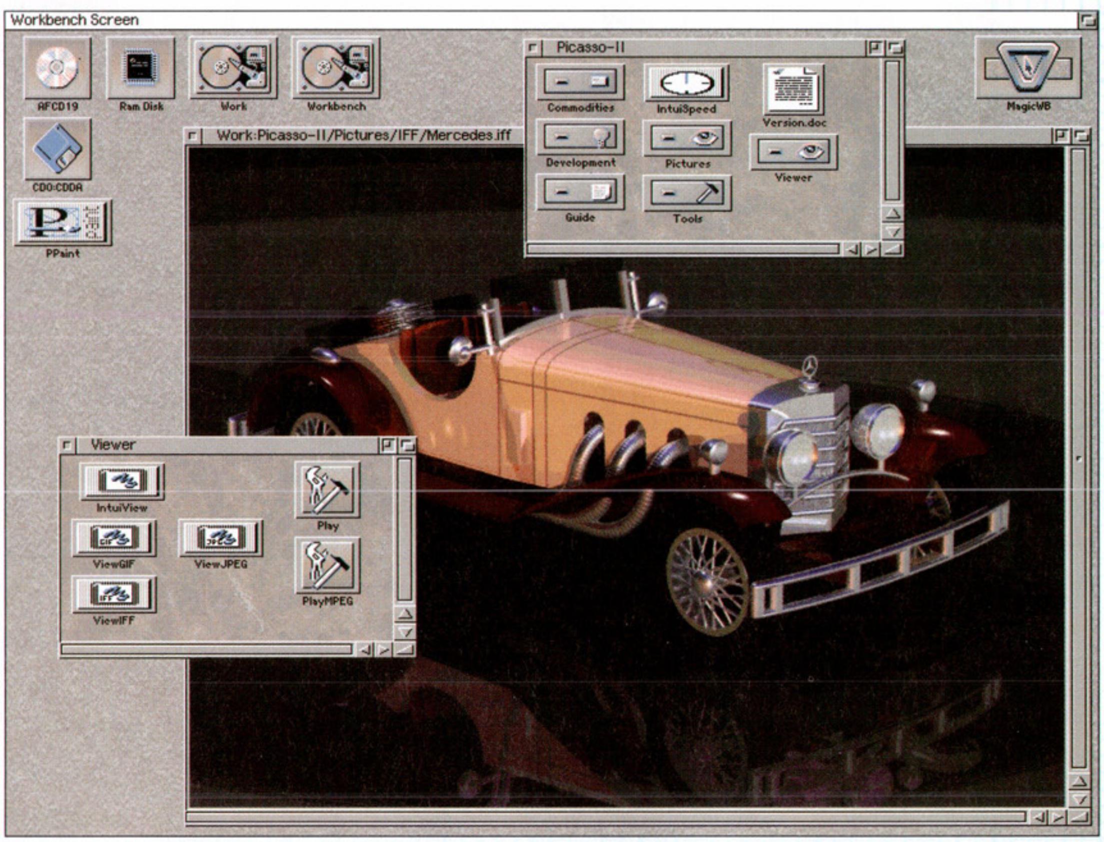
Expanding your computer should be a priority, as software developers can't realistically make modern software with a system designed several years ago. PC users expect to have to upgrade regularly to keep up with technology, yet many Amiga users think they don't need to. The costs are fairly minimal when you consider the benefits to your system and to the Amiga community as it attempts to compete with the continually developing hi-tech 90s. When you realise the technology you're using is at least 4 years old, you must see that there is a need to update.

The Amiga can compete with the PC and Mac, and through expanding you will see this. There are far too many expansions to go into detail on every one here but thanks to great price reductions recently there are now many that cater for a realistic budget.

You could wait for Gateway 2000 to produce new hardware, but there are no guarantees of how long this will take. The machines that are produced now are still supplied with the bare minimum, and many of the new machines are designed to cater for the expansions mentioned in this article.

Well, that's all for the Beginners Guide. I hope you found the series interesting and informative, and that it will in some way improve your computing. Long live the Amiga! AF

**A graphics card like the Picasso or Cybervision will make life much easier – and faster!**



# Beginners Assembler Coding

ON THIS MONTH'S CD

AFCD22:-In_the_Mag-/Assembler

Part 2 of 680x0 coding as Paul Overaa brings you an assembler beginners special...

Typical assembly language programs mainly consist of statements which contain up to four fields – a label, an instruction, the data or address that the instruction uses, and a comment.

Labels are used to identify particular places in the program (i.e. they provide symbolic names which make the program more readable) while comments provide in-line program documentation. Here's some illustration code:

```
OPEN_DOS:
  lea       dos_name a1                place library name in a1.
  moveq     #0,d0                      any version will do.
  CALLSYS   OpenLibrary,_SysBase       this is a macro.
  move.l    d0,_DOSBase                store returned value.
  beq       EXIT                       exit if OpenLibrary()failed.
```

Most of the instructions in this fragment have already been explained. The first statement, for instance, loads register a1 with the start address of the DOS library name (stored as part of the program's static data).

> Linker libraries are sets of pre-written system or utility routines which will be tagged onto the code...

The next instruction places a zero in register d0. This is an Amiga system convention – the OpenLibrary function requires the start of the library name (the address of its first byte) to be in register a1 and the version number to be in register d0. A zero value indicates that we are willing to use ANY version of the library that is available!

The third line, CALLSYS OpenLibrary, is NOT a 680x0 instruction – it is an assembler pseudo-command which identifies a group of real instructions known as a 'macro' which would be defined elsewhere.

Motorola-style macro definitions start with a label followed by the MACRO keyword and end with the ENDM keyword (lower case macro and endm are also accepted). The basic macro format takes this type of form: my_macro_name MACRO <main body of macro code> ENDM.

Parameters are specified using a backslash (\) followed by any alphanumeric character. You'll be able to see some example macro definitions in my coverdisk code.

All you really need to appreciate for the purposes of this tutorial is that the end result of including a statement such as CALLSYS OpenLibrary,SysBase, is that all the code defined in the CALLSYS macro gets automatically included in the program.

You'll also find a WRITEDOS macro used for displaying text to be generated via statements like this: WRITEDOS message,_stdout.

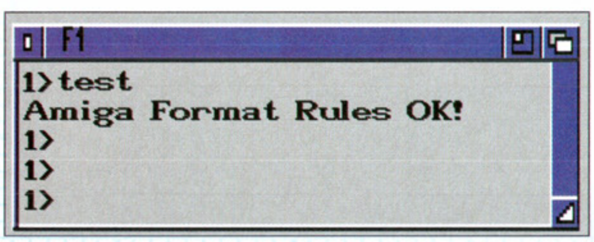
The main reason to use macros is that they allow the often messy details of function call use and so on to be hidden behind easy-to-read (and easy to use) statements. This allows 680x0 code to be written at a higher level than was possible with previous (non-macro supporting) generations of assemblers!

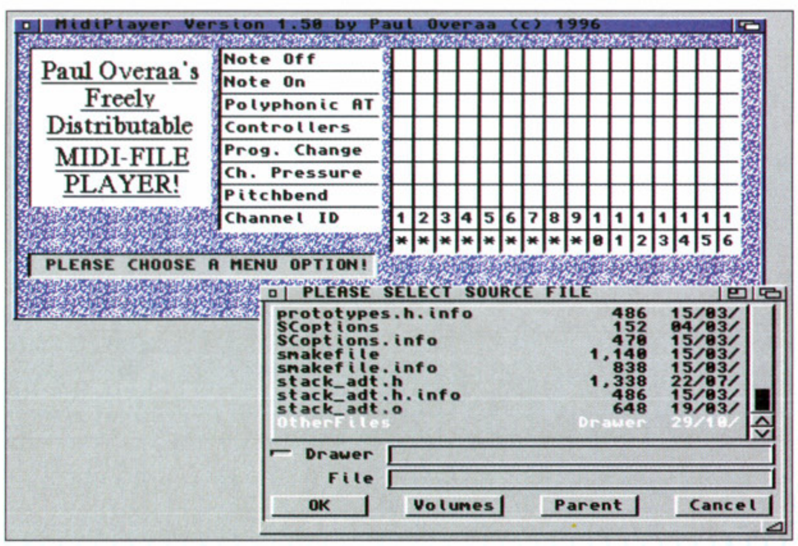
Returning to the fragment we were discussing initially, the OpenLibrary system call (like a great many Amiga library routines) may not succeed and so, when the program runs, one of two things may occur. Either the OpenLibrary call succeeds and register d0 ends up containing a valid 'base address' for the library, or the OpenLibrary call fails, in which case d0 ends up holding a zero failure indicator. The program must take account of both eventualities and this is what the example fragment I've been examining does, as the code stores (using a move.l instruction) the contents of d0 in a memory location which has been given the symbolic name _DOSBase.

As the data is moved, the zero flag is modified to reflect the value of the data item, and so a beq (Branch on EQual to zero) instruction is then used to decide whether or not the library was successfully opened.

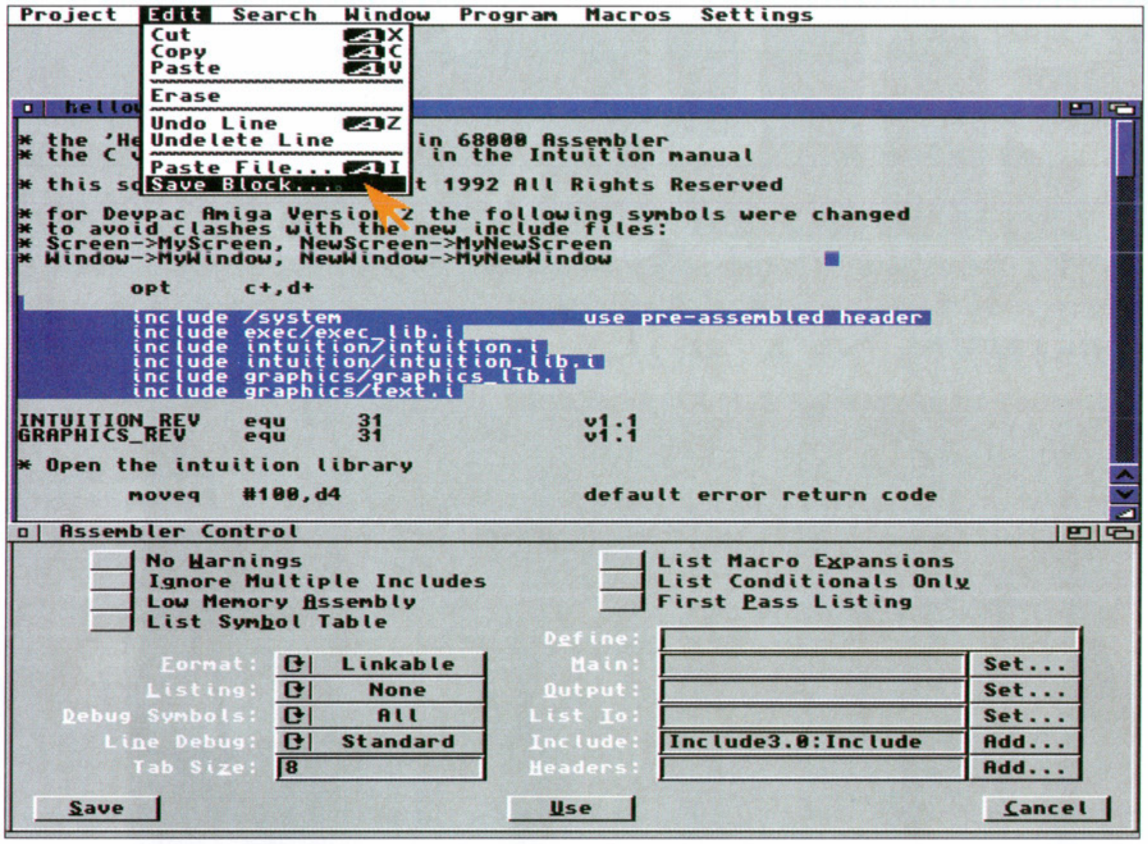
The result of this branch-based jiggery-pokery is that whether the EXIT branch is taken or not depends on whether the library call was successful at the time the program runs.

The shell-based example which you'll find on this month's *AF* coverdisk (below).




Once you've got some assembler coding experience under your belt, you'll find a lot of graphics help in the Amiga's run-time libraries.




**Try assembler coding yourself using the *AF* coverdisk files (above). After some practice, it's worth investing in a package like HiSoft's *Devpac* (right).**

Get the idea? Good, because these types of detailed step-by-step operations are what assembly language programming is really all about!

## CREATING A PROGRAM

Well, that's shown the sort of ball game that you enter with 680x0 coding, but how do you go about physically creating an assembly language program?

The first step is to use an editor program to prepare a source code file. This is an ASCII text file which contains the instructions that you've written and you'll be able to list and print the contents of such a file just as you would a letter or any other piece of stored text.

Most commercial assemblers come with their own editor programs but it is also possible to use an alternative editor or word-processor program. The only proviso with the latter option is that it must be possible to stop the word-processor from inserting additional control characters as these would probably cause the assembler program to come to a grinding halt as it tries unsuccessfully to interpret them. ED and MEMACS are two text editors which have been provided as part of the Amiga system software for some time, so all Amiga users will have access to at least these offerings.

Once a source file is available, the next step is to get the assembler program to convert it to the appropriate 680x0 instructions. Usually a standardised intermediate form known as an object code file is produced first.

This is not a runable program because, although the object file will include the translated 680x0 instruction-related material, the actual code itself will not be in the right format to be loaded by AmigaDOS.

Most programs at this stage still contain references to unresolved (unknown) items, such as linker library routines or variables that have been specified as being present in other object code modules (such as a standard piece of 'start-up code' that is used to allow programs to run from the Workbench). A third stage, known as 'linking', fill in the gaps and so produces a runable program file.

> **The best way to get to grips with all this mumbo-jumbo is to get hold of an assembler and run some examples...**

Libraries on the Amiga cause a few headaches for the beginner, mainly because the term is used in a number of different ways. The run-time libraries that I've just been talking about are collections of routines that, by virtue of the Amiga's operating system, are available to all programs. They are accessed by placing the base address of the library in register a6 and then performing an indirect subroutine call using a displacement value called the Library Vector Offset or LVO.

The libraries I am talking about in the context of the linker discussion above are rather different.

Linker libraries are sets of pre-written system or utility routines which will be tagged on to the code you write during the linking stage. If you use a linker library function within your program, the linker, providing you correctly specify the name of the library which holds the routine, will automatically find and include the right piece of code in the finished program.

The best way to get to grips with all this mumbo-jumbo is to get hold of an assembler and linker and then assemble, link, and run some examples. And this is exactly what you'll be able to do, using Charlie Gibb's A68k assembler and the Blink linker, which are both on the *AF* coverdisk.

You'll also find a very simple example on the coverdisk that makes use of almost everything I've discussed. If you load the file test.s, A68k and Blink into your RAM disk, and then make RAM: the current directory using the command `cd ram:`, you should then be able to assemble and link the code by using just these two commands:

```
a68k test.s -otest.o
blink test.o to test.
```

The result? The assembled, runable program (test) will be sitting in the RAM disk waiting for you to run it (by typing its name in the Shell window).

In reality, things rarely work this smoothly when coding at the 680x0 level. You may find that as the assembler attempts to translate your source file it reports any number of errors.

Whatever the cause (syntax errors, illegal instructions etc.), these faults will have to be corrected and this may mean that in the early days you'll frequently pass through the edit<->assemble cycle before you succeed in creating a program that assembles successfully.

Even then, you may find that the linker reports additional errors (misspelling library routine names or not specifying the correct location of library files are commonly seen linker errors). Again, these errors must be found and eliminated before a runable version of the program can be created.

It takes practice, and there's a lot more detail involved than there is with languages like Basic, but assembly language is powerful, addictive and, hopefully as you've now seen, not quite as complicated as you might previously have imagined! AF





# MailBag

Send your letters to: Letters To The Editor **• Amiga Format • 30 Monmouth Street • Bath • Somerset BA1 2BW** or email to:amformat@futurenet.co.uk – putting 'Mailbag' in the subject line.

## GAMES AND GLOOM

I have a few questions I hope you'll be able to answer for me.

1. While looking through the drawers of *AFCD20*, I was looking at the web sites drawer (in the look-here-first drawer) and I found what I think is a game called *Gloom-Deluxe* in DMS form.

After unpacking to floppy I tried to run the game but after the settings requestor had gone the program crashed. Can you tell me how to get this game working on an A600?

2. Can you tell me where I can get a copy of Gamer's Delight 1 CD and how much it costs? Also, is there any place where I can get a game called *No Second Prize* or can you tell me the name and telephone number of the software house that released it?

3. Would you be able to put the source code for *Alien Breed 2 3D* that was on *AFCD11* onto one of your other CDs? I didn't buy the CD issue of the magazine then, and now find that it has sold out. Which compiler would I need to compile it on an Amiga A600?

4. Do you know if there is a track editor for *Microprose Formula 1 Grand Prix* as some tracks are too slow and I would like to make my own tracks up? I would be grateful for a contact address or telephone number.

**Keith Forrester**
**Walsall**

*1. The files you refer to, if you read the HTML pages that accompany them, are demo versions of* Gloom *and* Deluxe. *You will not be able to play them on a standard A600, as they require an '020 processor.*

*2. The Gamers Delight CD came out ages ago, but you might find that Weird Science or Epic still have a copy available. Why not give them a ring?*

*3. Yes we can. It will be put into the reader requests drawer for you, probably on the next CD. It was written in C and compiled using SAS/C, so it will require adaption to work on other C compilers.*

*4. There is no circuit editor for* F1GP *I'm afraid, though you can edit virtually everything else with Oliver Robert's excellent* F1GPEd, *which was on* AFCD20.

## MISCALCULATED

Wanting to do a quick calculation, I accessed the above program from my HD. The calculation proved difficult as I was unable to determine the function, by sight, of 4 keys. "Whoops, what gives here?" I thought. Having got *AFCD20* mounted, I accessed the calculator in there. Again, 4 blank keys! I then tried a *CU Amiga* CD with the same result! My interest was now well and truly aroused so I loaded my old WB 2.0 extras disk and opened the calculator there. Joy! It was all there!

If the Amiga mags are putting out CDs with the faulty device then it seems that nobody uses the thing anyway. But are the new Amiga owners aware of this problem? If not, I suppose the next update of Workbench could carry the same bug.

Let's hope it gets put right. I can imagine PC and Mac owners laughing themselves silly if they knew that our trusty Amiga (well, at least the Commodore versions) couldn't get a simple thing like the calculator display right.

I have included a picture of my WB screen with superimposed calculator windows for both versions to show the glitch.

**D A Lucas**
**East Yorks**

*I don't quite know how to break it to you, but in fact there is nothing wrong with the calculator at all. It works perfectly. Well, it is in need of a serious update actually, but it does show up. I can't be sure from your screenshots, but it seems that you are using a different screen font on your Amiga.*

*The problem is most likely to be that whatever is selected for your Screen Font text doesn't have those specific characters available (as is sadly true for the font used by our CD, although the correct version of Futura B will be on* AFCD23*). The calculator utility won't allow you to select a specific font for its interface though. The only suggestions I have are:*

*1. Edit the font and create the special characters you are missing.*

*2. Draw the characters onto a piece of cling-film, then place it over your display so you won't get confused.*

*3. Use one of the many other calculator alternatives from Aminet, which are generally much better anyway.*

## THE GAMES THEY PLAY

I was wondering if the games *Theme Hospital, Krush Kill and Destroy* or *Dune 3* were ever going to come out on the Amiga. I've played *Theme Hospital* on the PC and it looks much better than *Theme Park* and I'm sure it would be just as good a game for the Amiga.

I have seen advertisements and pictures of *KKD* and it almost looks better than *Dune 2*. I think if there was a *Dune 3* it would top the charts instantly and they could improve upon *Dune 2*.

**David O'Hare**

*I'm sure the games you mention would be well received amongst the Amiga community. The only trouble is that the companies who produce those games have said they have no interest in the Amiga market anymore. The only chance that such games would be released is if an independent publisher, like clickBOOM, were to license conversions for the Amiga. Why don't you suggest it to them? Their web-site is at: www.clkboom.com*

## PIN MONEY

I have a small money saving tip for those people who use a Citizen ABC printer with a black ribbon. I purchase my ribbon cassettes from the local Tandy store, as they nearly always have them in stock, but I don't buy the ABC ribbon. I buy the 120D/180E/LSP100/Swift9 ribbon, which is basically the 9-pin ribbon. It seems to last just as well as the ABC ribbon but is a quid less, costing only £2.95.

All you have to do is snap off the small extra tabs that the 9-pin cassette has on the sides, and it's practically the same. I can't see any real difference, anyway.

For those new to printing, there's the old tip of spraying the ribbon with WD-40 when it's starting to fade. I find it is much better to flop the ribbon out onto a newspaper and spread it out, spray it lightly, and then use the winder to wind it back into the cassette. Otherwise, spraying the ribbon while it is inside the cassette, and therefore folded up, will cause streaky printing – not very good if you're printing a letter to your bank manager about that overdraft for a new PPC card (might be

**Continued overleaf ➡**

good if you want the overdraft for a new printer, though!).

I know it's old hat to most users, but I would have been grateful for such knowledge when I first got my printer as I use it regularly.

All the best, and I sincerely hope that the rumour I have heard about Gateway 2000 going bust isn't true.

**John Dixon**
**Boston**

*Generally, the ribbons designed for 24-pin printers have a tighter mesh and are supposedly more durable (because they have to be, being bashed by so many pins). But if you find that it works and the ribbons don't wear out quicker, then well done.*

*As to using WD-40 on expired ribbons, while it certainly frees up the trapped ink it isn't to be recommended. One good reason for changing your ribbon often is that it reduces wear on the pins.*

*The printer head is one of the more expensive parts of your printer, and banging away on an old ribbon full of WD-40 isn't going to do it much good. I'm not saying that it doesn't work, or that your printer will stop working if you try it, but it certainly does shorten the life of the head. But readers are obviously free to try it if they wish, so thanks for bringing it up.*

*As for the rumour, Gateway are nowhere near to going bust.*

## TOTAL CHARLIE



**Moviesetter remains a great solution for file size problems.**

Thank you for reviewing my fourth *Charley Cat Quickie* in issue 104 in PD Select – I'm glad Dave Cusick was impressed. However, I'd like to reassure him on a couple of things. First, I actually test my cartoons before sending them off and had no trouble loading it, and second, you actually need 2.5Mb of RAM, not 2Mb, to run *CCQ4* (which is in the documentation).

I would consider using programs other than *Moviesetter* for final productions if other programs were as easy, if not easier, to use, and were efficient on memory. On that basis I'm not surprised that *Moviesetter* featured very highly in your Top 100 serious products in issue 100!

In issue 104's Mailbag section, Raymond Mallard wondered if anyone knew how to get fast RAM back when booting from the cover CDs. Run NoFastMem from your Workbench partition on your hard disk and all that Fastram comes back. And, concerning your reply to that letter, if you don't boot directly from your cover CDs, loads of stuff doesn't work (well, it doesn't on my Zappo CD-ROM drive anyway).

**Anthony Whitaker**
**Berkshire**

*I'll accept your corrections. I agree that* Moviesetter *certainly belongs in the top 100 (which is why I put it there). In these days of CD drives some people have forgotten what an elegant solution it was, and still is, where file size is a major concern.*

*The problem you have mentioned is not one we have had any correspondence on before, which is a little unusual I think, and possibly something to do with the Zappo. The fast RAM is certainly not lost when booting on a $CD^{32}$, or from any of our office machines (A1200, A4000). Anyway, I'm glad you have found an effective solution to the problem.*

## AD ADDITION

Firstly, congratulations to everyone at *Amiga Format* on producing such a fine magazine and for maintaining such high standards over the last few years, which, as we all know, have been trying times for the Amiga. However, while browsing through the letters pages last month, I was surprised to read your comments regarding Gerald Mellor's suggestion for a television advert as this is exactly what we need!

I think it's high time the powers that be started making some noise about the Amiga and exactly what it's capable of. You asked how many of *AF's* readers actually bought their machine because of a TV advert. This is a fair question, but then how many of *AF's* readers are actually new Amiga owners?

I'd say it's a fair bet that most of us are die-hards who've stuck with the Amiga because we wanted to, and who bought our machines years ago during the height of the Amiga era.

Advertising wasn't as necessary back then as the Amiga was established as the most popular home computer in Europe and everybody wanted one.

Now of course, it's all PCs and Playstations, so if the Amiga is going to make any sort of come-back at all, it has to be promoted as a computer capable of competing with these machines.

Amiga International should be trying to target all those potential first-time computer buyers who think a home computer means a PC clone.

You're right, advertising on television is expensive, but surely a multi-billion dollar company like Gateway should be well able to foot the bill. After all, it needn't be anything as ludicrous as the hysterical Windows '95 launch, just a well made ad showing the Amiga doing what it does best.

Since the Amiga is capable of producing such stunning visuals, surely harnessing the visual impact of television is the best way of promoting it as an alternative for those people thinking of buying a computer.

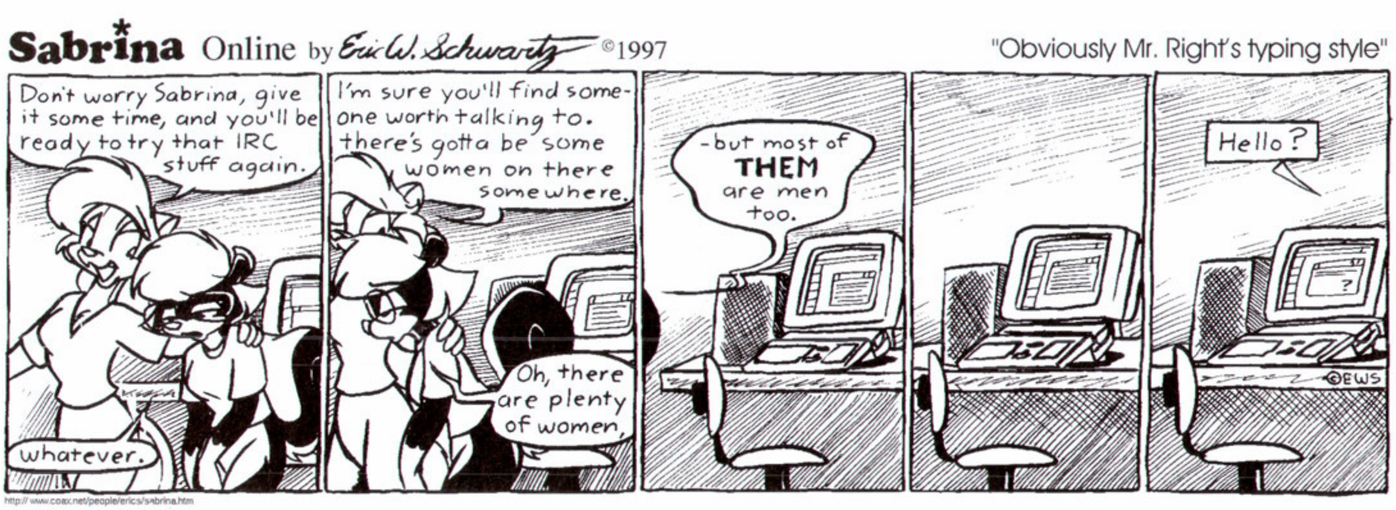
Hopefully Gateway will really push the Amiga and pay back all the users who've kept this amazing platform alive. Keep up the great work on *AF.*

**James Whelan**
**Ireland**

**Should Gateway be spending millions on TV adverts for the Amiga this Christmas?**

GATEWAY2000
*"You've got a friend in the business."*®

*Thanks for your letter. I don't think we were saying that advertising per se is a waste of money, just that a full blown TV ad campaign might well be. This Christmas the Western world will be blitzed with quite literally hours of TV ads, from Sony, Nintendo and the various PC manufacturers and dealers. Even a huge amount of money is not going to make a dent in that.*




http://www.coax.net/people/erics/sabrina.htm

*A better return would probably be seen from targeted advertising and some cunning marketing. Irrespective of the fact that Gateway have piles of dosh, I don't think they want to spend it all on the Amiga.*

## GENERAL WHINE

The Amiga will survive, although as to its form we all wait in anticipation. The question is, will *AF*?

1. Presentation is great. Better graphics, better layout. But great graphics don't make a great game. And where's the description – main article and disk/CD feature-on the spine?

2. I gave up waiting for your review of the HP690C inkjet that is so popular with PC users, so I had to rely on the PC press and *Which?* magazine. I bought one and it's great, but shouldn't you be telling me that?

3. Now that games are becoming more hardware intensive, you must review them at the minimum recommended system requirements. Then, if necessary, modify the scores for the '*AF* recommended minimum setup.' If this is what you do then tell us in the review. For example, was the *Nemac IV* review based on playing it on an '020 Amiga or an '030? Or even an'040? *Foundation* is going to be very hardware intensive, so give separate marks for playing it on an '020, '030, and graphics card Amigas.

**Jon Day**
**Thirsk**

*1. I have to say I'm completely mystified by your first point. If you want to write in again explaining it to me then I might be able to answer. You think the magazine looks good, but that doesn't make it a good game. No – it's a magazine.*

*2. Hewlett Packard don't support the Amiga. They don't do Amiga drivers and it's rather difficult to persuade them to lend us a printer to review, when they don't actually want to sell it to Amiga users. We would find it difficult to recommend the printer to any Amiga owner under these circumstances. We will be doing a printer roundup early in the new year though.*

*3. I don't really see the merit of giving different scores for various different types of machine. By your logic, some games would end up with six or more scores, or even more when PowerPC games are released. I mean, on an '040 with a graphics card it scores 60%, without the graphics card it gets 54%, but an '060 without a graphics card… you see what I mean. That isn't actually making things clearer, it's making them more complicated and it would take up half the review space. Instead, we give you information in the actual review and tell which the machine it was tested on, as we did with* Nemac IV. *In future, as you rightly predict, things are going to get more complicated with many different types of machine running the same game. In these cases I hope we will be able to better indicate how different hardware will affect the gameplay. I'm afraid you'll actually have to read the review rather than just looking at the number in the bottom right corner.*

## ANTIPODEAN ANSWER

A couple of days ago the postie delivered my copy of the Christmas issue of *Amiga Format*. I know it is still November, but I don't really mind that.

There was a time when I was lucky to get the magazine 3 months after publication, but that was before I took out a subscription. I keep reading about people in this part of the world complaining about the time it takes for the mag to get to them, and I know exactly how they feel.

Even if everything goes according to plan with the freight arrangements and there are no waterfront strikes, the copy may not appear on the newsagent's stand because there is insufficient demand, or for some other local reason.

I can tell those people in "the land of the long white cloud", or Oz for that matter, that it makes economic sense to subscribe. The cost of *Amiga Format* in Australia is A$16.95 for the CD version, and it arrives between 2 to 3 months after publication.

The cost to subscribe and have it delivered to your door 5 days after publication is just over A$15.00 a copy.

At the moment the exchange rate is very unfavourable to imports, down to A$2.40 to the pound sterling, so it is actually around $18.00 a copy. Even at that price it is well worth it to have a top rate Amiga magazine delivered, on time, to the door.

**Paul England,**
**Australia**

*Thanks for your timely tip. Of course there are other benefits to subscribing, but I would have thought that getting it two months early would be a bit of a clincher for our readers down under. Never mind the gifts, financial savings, extra disk and now, a completely free piece of cardboard!*

## PLAY ON

You've asked for suggestions for new tutorials, and I seem to have had the least success with music modules (OK, I'm stupid, but I suspect there are plenty of us out there).

As a video enthusiast I would really like to master the art of the tracker, so as an experiment, using DOpus, I copied a few modules off catalogue and games discs, hopefully not infringing any copyright (another field you may care to enlighten us on).

Most, but not all, played in DOpus. Most would play, but not save, in *OctaMED*. When loaded in *Audiomaster*, most just produced a hiss. When loaded into *AGASSM*, some worked fine, some were not detected as a module but worked when set manually. *AGASSM* supported two types of module, but others totally refused to load at all!

I think most of us have heard of MIDI, but what about MED or ST-Modules? Just how many types are there, and can they be converted, like other files, from one another? How do you know which type is which, and how do you play them?

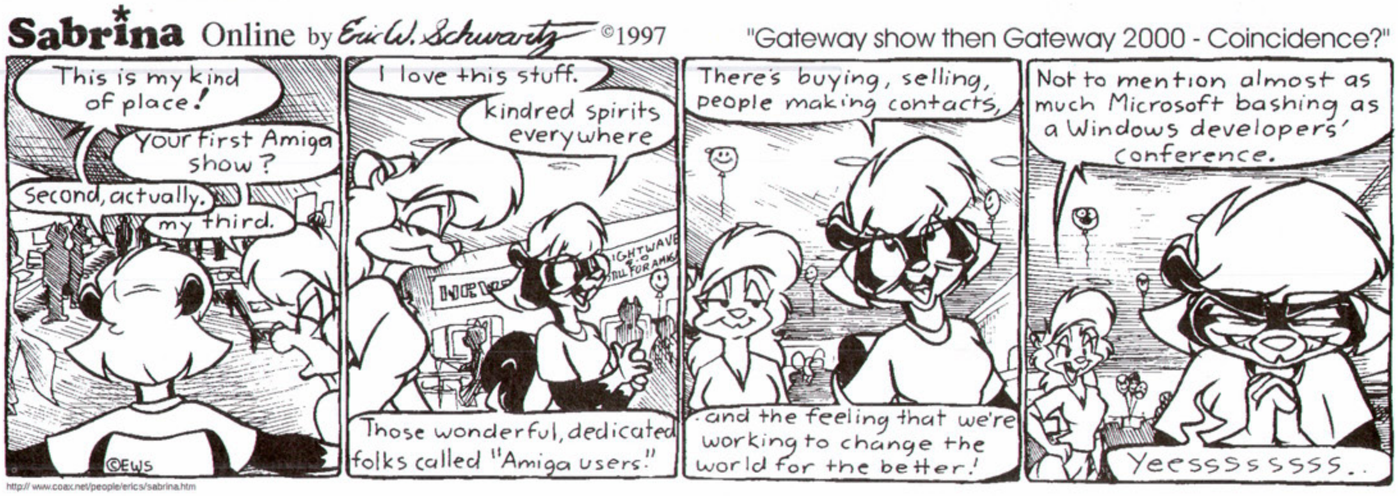
Well, there's my request, I hope you find it productive.

**John Hudson**
**Derby**

*Firstly, I'm afraid it is a breach of copyright to "lift" soundtracks from games and other sources and then use them in your own work. You must contact the author and obtain their permission before you use their work as the soundtrack to your videos.*

*You haven't made it quite clear what type of tracks you have copied. The most common*

**Continued overleaf ➡**




http:// www.coax.net/people/erics/sabrina.htm

## MONKEY BUSINESS

You seem to dismiss older games as an irrelevance (Monkeying Around, Letters *AF104*) and say that the shelf life of a game is short. Well, the shelf life may be short but the game itself remains very playable forever.

Some years ago I purchased games like *Monkey Island, Dungeon Master, Eye of the Beholder* and *Cadaver*, which I enjoyed immensely and then put away once I had completed them. My oldest son, eleven, (stupid name for a kid, I know) has just resurrected these games and is now enjoying them just as I had done. Add to this the fact that I have two more children who will probably play them, and all of the people that have only just discovered the Amiga and the games scene, then the market could be huge.

I'm quite surprised that it has taken so long for a company to realise the potential of these games and to re-release some of them. I only hope that Guildhall can find more games like those I have mentioned above, and that they will not be lost completely.

My second point regards the shareware issue. Recently I have decided to register programs as I can now afford it, but the service so far has been appalling. I sent off for the registered version of *Deluxe Pacman* to Mr Vigdal in Norway and had to wait over five months for the disc to arrive.

More recently I sent off to SASG for the registered version of Magic Workbench and on the registration form it states that the wait for the discs can be up to eight weeks. I have yet to receive Magic Workbench and it looks like the wait will indeed be at least that long if not longer. How can this service be justified? If the service were better I would be more inclined to register my shareware more quickly, as I wait for one program to come through before sending money to somewhere else.

Anyway, those are my opinions if you are interested. Keep up the good work.

**Neil Adams**
**Norfolk**



**The Secret of Monkey Island – a classic game, but you won't find it in the shops.**

*Of course we are interested in your opinions. May I just say that I never said that old games are irrelevant. Of course they aren't. They are the standard by which we judge many games today and many of them have never been surpassed, including* Monkey Island, SWOS *and the like. What I actually said was that the shelf life of a game was short.*

*The overwhelming majority of sales are made within the first month of release. This means that software retailers stack their shelves with the "hot" games and try to get rid of the old ones as soon as possible. This doesn't just apply to Amiga games, as the shelf life is actually even shorter in the PC and console market.*

*The net result of this is that games only tend to be available for a limited period, unless they are worth bringing out on a budget label. What would be the point of having a warehouse full of stock that would take well over a year to sell?*

*I'm not saying this is a good thing, but it is the commercial reality of the games market.*

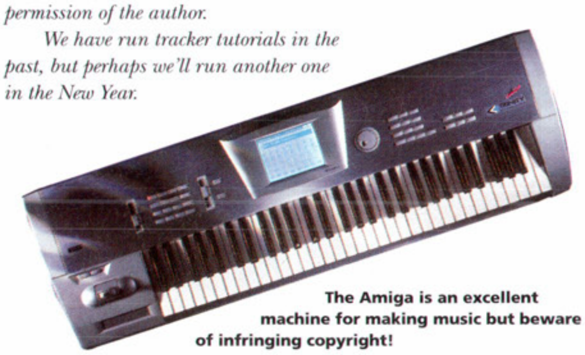
← *form of music track found on the Amiga is the MOD, or module. This format loosely adheres to the standard set by an old piece of software called* Soundtracker. *In fact, MODs have been so popular that they have even escaped onto other machines like the PC and the Mac.*

*Some tracker software packages, such as* OctaMED, *have extended this format to include the facility for more tracks and various other additions.*

*These MODs will not be playable through older software. The most versatile MOD players, as opposed to MOD editors, is probably* Hippoplayer, *which is available on* AFCD22.

*Some sound files that you've taken may not be in a common format, specifically to stop people from using them without the permission of the author.*

*We have run tracker tutorials in the past, but perhaps we'll run another one in the New Year.*



**The Amiga is an excellent machine for making music but beware of infringing copyright!**

## AT LAST, A CONVERT...

About two months ago I bought an Amiga 600 (non-HD version) and loved it so much that I have upgraded it with a 40MB hard drive, CD-ROM and even a VIPER630 (4MB version). As you can imagine, I have spent a lot of money on it (around $750 so far, or £340).

I am so pleased with it that I don't feel the need to upgrade to an A1200, especially when they cost $1250 (£550) just for the computer alone, as the price I mentioned above included the cost of my A600! Anyway, all the games I've seen for the A1200 so far either look boring (to me) or I can get in some form or another for my 686.

The reason I got my Amiga was out of spite from having three Amiga emulators on my 686, none of which worked properly. I got the workbench screen on one, and that was about it.

Right up until the day before, I didn't even like Amigas. Now I love them! I'm thankful the A600 was there too. I was just looking for an A500, but when I saw the A600 for only $20 more I decided to get that instead and I made the right choice!

I think the CDs are great and the 'On this month's CD' logos in the various sections of the magazine make it even easier to see what's on the CD, and where.

A couple of suggestions – you always include demos but they're all A1200 only. How about some A500 & A600 compatible demos on the CD for us non-A1200 owners? Just one or two a month would do, and I wouldn't mind if they're not exactly new.

Also, how about some games for use with the 8-bit computer (ie. non-Sega/Nintendo) emulators? With C64 and Spectrum CDs out, and the games freely distributable on the net (so copyright wouldn't be a problem), how about putting some on the CD for those of us who don't have net access?

Anyway, I would like to ask a couple questions. First of all, OS 3.1. I have been thinking about upgrading to 3.1 but I haven't for two reasons:

1. I can't see a need for it (yet).
2. Possible compatibility problems.

I got my Amiga mainly for the games (*Super Skidmarks* is the best and *Cannon Fodder* wipes the floor with the IBM version), but I have been worried about compatibility problems since I got my VIPER card. Some games, mainly older ones, refuse to load when they were fine before. I don't want any more games that I already own to suffer from these problems.

I have heard of a program you load that emulates the Kickstart 1.3 ROM, making the computer think it has a 1.3 installed until you turn off, and therefore making all the old incompatible games work. Do you know of this program and where I could get it from? (I don't have Internet access.)

If I do decide to upgrade to OS 3.1 (I hope it has an IDE controller for my hard drive and CD-ROM), where can I get it from and how much will it cost ?

Do you know of a way to slow down the computer without removing the accelerator as I have some games that run too fast, since they run off the processor speed and not their own? Is there a program to temporarily slow the computer down?

Finally, just a comment about Sabrina Online. Excellent! I have never seen such a great or funny comic strip ever. I hope it continues forever (or a long time at least). It's great.

**Adam Wade**
**Ridleyton, Australia**

*Hurrah! At last, a convert in the other direction. I hope you can now see why there are so many fervent Amiga supporters.*

*We do include any A500/A600 software that becomes available and many of the games you'll find in the Screenplay drawer of the CD will work on your Amiga.*

*We can't distribute old games for the C64 or Spectrum because of copyright restrictions. You may well find them on the Internet, but that still doesn't mean they are strictly legal.*



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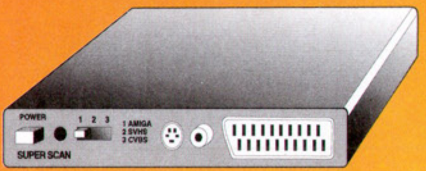
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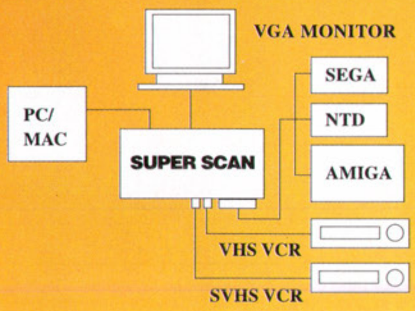
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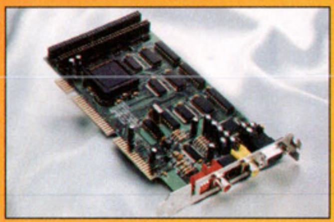
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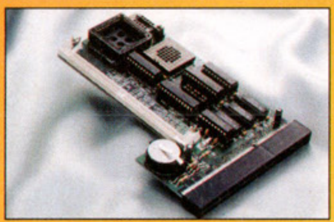

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# The Gallery

ON THIS MONTH'S CD

AFCD22:-ReaderStuff-/-Gallery-

Spacecraft, dragons and a disturbingly accurate picture of the *AF* team in this month's Gallery.

**Between Two Evils by John Bankier**

**Excellent bit of caricature work and I'm particularly pleased that it's me in the middle...**

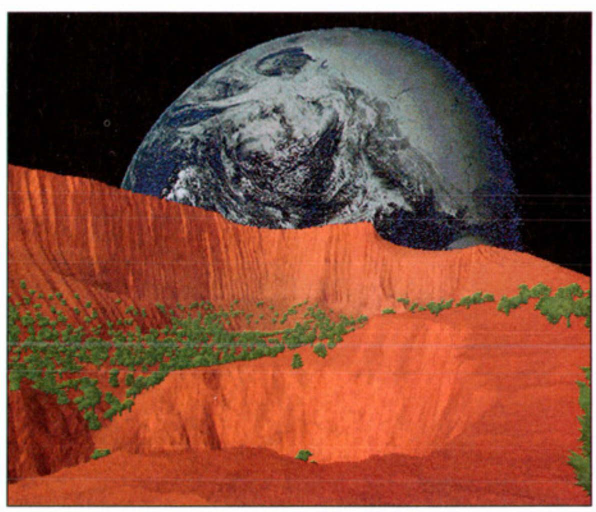






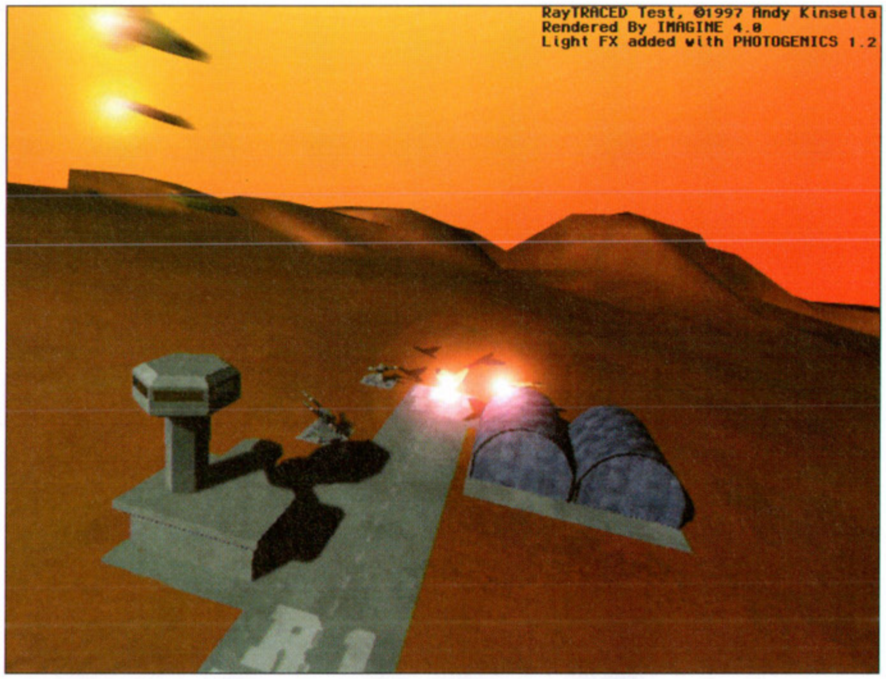
**Mars-Earth and Nebel by Steve Etherington**

**Two nice-looking pics from Steve here. One is a fairly straightforward composition using a *VistaPro* foreground and a lovely picture of Earth from space as a background, but Nebel really shows off the power of *Personal Paint*.**





**BizEye by Scott Brimley**
More composition work courtesy of *Personal Paint* here. Scott's taken his favourite fractal output and cunningly woven it in with an Egyptian-esque eye.



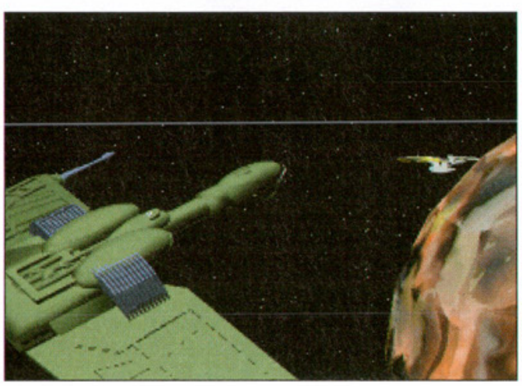



**Airfield by Andy Kinsella**
Andy's obviously working his way up to giving us a full animation of this scene. You'll find other test renders of the airfield on the CD.

**A Dragon called Draven by Douglas Bayley**
Douglas gives us another of his highly coloured and completely gorgeous surrealistic images.

**Home by Hannu Mikkola**
The pastel colours and the detail in this picture are what make it so nice. Let's see this house in your animations Hannu, instead of the rather ordinary platonic shapes!





**Klingon Retreat by Craig Thorburn**
Craig's taken our advice to heart this time and his ship fills the foreground. We like the texture used for the planet – it makes it look more like meringue!

# Readers Ads

Out with the old and in with the new they say at New Year, and where better to get yourself a bargain than here in ***AF***?

## For Sale

● **Accelerator board,** Commodore C2630, 1030 with FPU and 4Mb fitted. Goes into CPU slot of any big box Amigas. £110 o.n.o. ☎ Maurice 01491 534144.

● **A500 Workbench, *DPaint,*** many games, demos, etc. Joystick, mat and mouse, connectors for TV. All boxed with manuals. £130 (inc. p&p) or best offer. D. Newbery, 19 Neales Close, Harbury, Leamington Spa, Warwick, CV33 9JQ.

● **A1200**, joystick, WB3, word processor, graphics package, games and utilities, £160. Also A500 motherboard £25. A500/A500+ hand scanner for A1200 with OCR £40. All include postage. ☎ 01633 859208.

● **Amiga 1200 CD Q Drive** Quad Speed. Cost £249, accept £120. External floppy disk drive £10. Colour stereo monitor £80. ☎ Steve on 01704 500335 after 6pm.

● **For sale or swap, unused IDE** PC internal CD-ROM, 12 speed, £100 ono, or swap for Amiga SCSI CD-ROM with cables. ☎ S. Bray 0116 2993140.

● ***Real 3D* Version 3**. £150 Datel Genius Graphics Tablet £30. *Vistapro Version 3, Makepath, Terraformer* £20. All boxed with manuals. ☎ Trevor, 01842 764038.

● **Magnum 33 MHz accelerator** 8Mb £80 (new), 14.4k Fax/Modem £40 ono + postage. ☎ J. Scott 01900 63568.

● ***Amiga Format* mags,** issues 32 to 66. Some disks on request. Also does anyone know where I can get the *Final Writer Lite* coverdisk from? ☎ The Goughs 01970 617390.

● **Amiga 1200**, 127Mb hard drive, speakers, mouse, a few games, no monitor. £150. ☎ John 01709 586837 after 6.30 pm.

● **A1200 Videomaster** with Colourmaster Video Digitizer with S/W Grass black & white video and full screen colour stills, boxed as new – £80 or nearest cash offer. Contact Adrian on adrian@thenet.co.uk

● **A1200 boxed with games**, utils and manuals. Excellent condition, bargain at £120. ☎ 01933 400295.

● **A1200,** Blizzard 1230/111 50MHZ accelerator with 50MMZ 68882 FPU and 4Mb RAM. Also included Microvitec 1438 Monitor, 240Mb hard drive and good software collection. £500. ☎ Jon 0976 235475.

● **A500/500+ accelerator board** with memory software, collection of games, Tools Disks, HD internal 3.5" disk drive conversion, 5.25" drives conversion. Will work on Amiga. Many software product tools and ideas. £180. ☎ 0121 6018330.

● **A1200 8Mb RAM** with clock £40 ono. GVP A530 Turbo, comprises 40MHZ 030, 80Mb HD, 4Mb RAM, SCSI interface. £200 ono. Full documentation, etc. Loads of software installed. ☎ 01279 869749.

● **Colour printer, Citizen Swift 200,** 24-pin dot matrix with software, £65 ono. Apollo 1220 accelerator with 4Mb and FPU, £65. *Wordworth 2* and *Civilization AGA*, £5 each. ☎ Stuart 0181 9305753, or 0181 9300532.

● **A4000, 030, 6Mb RAM**, 120Mb HD, 8x CD-ROM, additional disk drive, 1084S monitor, Star LC24-10 printer, loads of games, CDs, etc. All manuals. £600. ☎ Russell 0181 6414953 (evening).

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Free!

● **Sequencer program, *Quartet*** (boxed), £20, MIDI Box and software (boxed), £20. A500+ with expander and all connectors, £50, or all for £80. ☎ Patrick 0171 938 8729 (daytime), 0181 6893258 (evening).

● **31 original boxed Amiga games,** £3 to £7.50, or £125 the lot. 1.5m parallel printer cable (new), £5. 50cm 3-connector 50-pin SCSI cable (ribbon), £5. ☎ 01709 814296.

● **1300 MG Metro 1984,** swap for an A1200 with hard drive, etc. Must have some games. ☎ 01709 851768 Rotherham or 01709 830213.

● **Surfer Fax Data Voice Modem** 33.6 KBPS. Unwanted prize, new. Never used. Sell or swap anything, 040 upgrade with FPU MMU preferred. ☎ Les 01744 733984. Also wanted A500 Amiga add-ons, CD Drive, hard drive interface, etc.

● ***Brilliance 2, Final Writer 4,*** *Imagine 3, HiSoft Basic 2, VistaPro 3, Mini-office, Termite, Acid Attack, Cannon Fodder 2, AB3D, Worms, UFO, Sensible Soccer, Jet Strike.* All cheap. ☎ Andy 01455 202853. Leave message.

● **Mitsubishi Multisync Monitor**. Will display all screen modes, £150. Minigen Genlock £25. Canon BJ-200 Bubble Jet Printer, SHQ mode, manual, lead, Amiga printer driver software, £100. ☎ Pete on 01705 877390.

● **A1200, 6Mb RAM**, GVP A1230+, GVP A1291 SCSI Drive, 500 Mb HD, Commodore 1942 monitor, additional floppy drive, Canon B510 Printer. £400. ☎ Worcester 01905 357448.

● **Dual speed CD-ROM,** external, fits PCMCIA slot, with manual, installation software and power pack, etc, £70. ☎ Alexi 0161 3049471.

● **A1200, 10Mb** 420HD, 8512 Zorro II, 2 disk drives, Phillips 8833II monitor, hand scanner, AGA switchable FPU, thousands of disks, plus *DPaint* and *Adorage* videos. £650 ono. ☎ Tony 01244 836147 (after 6.30pm).

● **A1200, 2Mb,** 120Mb HD, 8x SCSI CD-ROM, PSU, Squirrel, Star LC10 printer, around 300 games on CD and disk, WB 3.0, magazines, books, manuals. VGC. Buyer collects. £400 ono. ☎ Scott 01785 815278.

● **Amiga A2000**, 24Mb RAM, full 68030, SCSI-2 Interface, 404Mb Hard drive, CD-ROM, Piccolo SD64 24-bit graphics card, 15" Multisync, 1085S Pal twin monitor system, Workbench 3.1, £550 ono. ☎ Rob 01787 374286.

● **2 Speed CD-ROM with Squirrel**, 2nd disk drive (DFI), *Assasins 3, Wordsworth 6, F1. 1-100, Learning Curve, Aminet Set 3, Aminet 14, Epic Interactive Encyclopedia 1997, Big Red Adventure*. No sensible offer refused. ☎ 01934 626751 after 7pm.

● **Alfapower Unit** with full WB 2.1 plus HD installation disks, boxed with instructions, suits A500 or A500+, £45. Also A500 2Mb games, w/processors, K/Start 2.05, £40, or together, £75. ☎ Bill 01762 344641.

● ***Testament* £10**, *Dungeon Master II* £8, *Super Streetfighter 2* £10, *Chaos Engine 2* £10, *Reach for the Skies*, £7, *Cannon Fodder 2* £10, A1200 4Mb RAM board, no FPU £25. ☎ R. Edwards 01383 736399.

● **Action Replay Mk III,** lots of original games. Offers. SAE for list to: C Reynolds, 7B Scotchwell View, Haverford West, Dyfed, SA61 2RA.

● **Due to upgrade, Apollo 1230** Accelerator with 8Mb Simm £90. Portable CD-ROM drive with case, headphones, boxed with 2 CDs. Both vgc, £90. ☎ Dave 01491 574706 (between 3pm – 5pm).

● **CD³² Games £5 each**, *Super Skidmarks, Jetstrike, Nick Faldo Golf, Project X, Gloom, Roadkill, Prey, Arcade Pool, PGA European, Labyrinth, Star Crusader, Gunship 2000, Jungle Strike*, £50 the lot. ☎ Mick 01268 761429.

● **Games, all Boxed, £5 each**. *Scrabble, A10 Tank Killer, Virtual Karting, Ryder Cup Golf, PGA European, Fears, F1 World Champ Edition*, £25 the lot. ☎ Mick 01268 761429.

● **SCSI interface** for Blizzard 50MHz with 4Mb RAM, £60. A1200 RAM board £40. ☎ Bob 01305 822347 (evenings). Email bobford@avnet.co.uk

● ***Art Effect 2.0* £60**, *Studio Professional II* £25, *Brilliance 2.0* £20. All boxed originals with manuals. ☎ Mick or Sharon 01268 761429 Wickford, Essex.

● **A1200 with 28MHz 68030**, 16Mb fast, 80 + 120Mb IDE hard disk,16 speed IDE CD-ROM, Phillips 8833 monitor, Vidi12 digitiser, *AF* from issue 23, *AS* from issue 1, many games and CDs. £500 ono. ☎ Darron Edwards 01189 620848.

● **A500+ and A600,** £120 each. Extra disk drive and colour printer also available. *SWOS, Theme Park, PGA European Tour* and others, £5 to £10. ☎ Dave 01380 729882, evenings.

● **1220 4Mb RAM board £40.** ☎ Jim 0181 4733376.

● **A1200 6Mb RAM**, 170Mb hard drive, 200W power supply and software £300. Blizzard 50MHz 030 16Mb RAM £100. ☎ D Mayberry Halifax 361366.

## User Groups

● **Clonmel Amiga users**. Is there anyone in the Clonmel area interested in starting an Amiga User Group? If so, contact James ☎ 052 24613.

● **Amiga contacts wanted** to form User Group in Colchester. If you are interested ☎ Patrick on 01206 212864 (evenings/weekends only).

● ***XCAD* users** interested in forming a User Group and maybe *XCAD* Journal. Also want copies of any *XCAD* manuals, magazine reviews or original adverts. ☎ Tony 01662 250320 after 6pm.

## Personal

● **Anyone with *Amos* programme** knowledge or help. Also anyone interested in being Amiga contacts, please write to Friends of Amiga, 102A King Street, Alfreton, Derbyshire, England, DE55 7DD.

● **PD contacts wanted**. No pirates please. Send list and letter to: Andrew Jackson, 7 Nut Tree Close, East Huntspill, Nr. Highbridge, Somerset TA9 3PN.

● **A500, A600, A1200 contacts** wanted to swap original games with. Must be prompt and reliable. For details ☎ Clive 01227 781266 after 6pm.

## Wanted

● **Wanted *Elvira 1 & 2*.** Also *Waxworks*. Willing to swap games or buy if the price is right. ☎ 0181 3115733 after 6pm and ask for Julian.

● ***Elvira II* Disk Four Missing!** Also my copy of *The Patrician's Map* missing! (Original!) If you have them, maybe I have what you need. Many originals including *W. Beamish SSF2T*. ☎ Tony 0181 8788215.

● **I need *Rainbow Island,*** *New Zealand Story* and Workbench 1.3. Can anyone help? ☎ Bev 01280 847196.

● **A600 *Lost Woody's World*.** Will pay if sent to address, or phone. Desperate. Contact Jim McCabe, 242 St Kilda Crescent, Kirkcaldy, Fife, KY2 6DS. ☎ 01592 206207.

● **Z88 Cambridge Laptop Computer** (and software if possible) for connection to Amiga. ☎ Dave on 01933 681576 at any time.

● ***3D construction kit 1* or 2.** PLEASE! Has somebody out there got them? I am willing to pay £15 for either. ☎ Jonathan on 01702 303189.

● **Sounds Terrific Vol. 1** & Multimedia Toolkit Vol. 2 wanted. Also any manga CD (pictures only, no anims!) Please email at hibisch@hotmail.com. Manga CD can be home-made from various downloadings.

● ***TV Paint* with manual wanted**. Any Version except for "Junior". ☎ Martha 0181 3256152. Email BOTH2NOTTWO.DEMON.CO.UK

● **Has anyone got *Rorke's Drift*** for sale? Good price paid. Have been after this game for years. ☎ Les 01744 733984 anytime.

● ***Frontier, Elite 2*** for A1200. ☎ Brett 01704 870486.

● **I am looking for *Simcity 2000* and** *Space Crusade*. Any offer considered. Contact G. Todd, 18 Reedloch Drive, Barassie, Troon, Ayrshire, KA10 6UU.

● ***Tower of Souls***, copy which was updated to run on hard drive and not lock up when some rooms are entered. ☎ P Tyler 01246 417679.

● **Any good astronomy programs,** must be virus free. Any programs on clipart tutorial pro, spreadsheet print program or anything on disk. Will pay good price. ☎ J Sharp 01495 763998.

● ***Defender of the Crown*** for A500 or A500+. Mr John Evans, 62 Cedar Close, Overdale, Telford, Shropshire, TF3 53P.

● **Contacts for swapping tips**, games, ideas. A1200 owners in Poland especially welcome. Contact Mike Gray, 13 Alfred Street, The Hoe, Plymouth, Devon, PL1 2RP.

● **Amiga CD³² games:** *Alien Breed Tower Assault, Syndicate, Jungle Strike, Cannon Fodder, ATR, Alien Breed 3D*. Good price paid. ☎ David Lowe 01316 213490.

● **Original games for A600,** cash offered. Send lists to 79 Whitley Road, Eastbourne, East Sussex, BN22 8LT.

● ***ATR* on disk** for A1200. ☎ Jon 01634 372730 after 5pm.

# Coverdisk

AMIGA FORMAT



A new year, a new CD – ***AFCD22***. This month's *Amiga Format* CD is better than ever. Only Ben Vost can explain why...

It may well be the year of Amiga co-operation, what with all those licenses flying to and fro at Amiga Inc., but here on the *Amiga Format* CD 1998 is also going to be the year of the exclusive demo.

On your behalf we're always trying to get demos of up and coming products, whether they be games or serious bits of software, and this month we have two great ones for you.

First up is a completely exclusive demo of a little game called *Foundation* which you may have heard of. It's similar to the one that's floating around Aminet at the moment but, unlike the Aminet demo, Paul Burkey has put features in our version, like snow, that won't be found anywhere else!

The demo comes in several different flavours that will cater for most tastes and machine abilities, from AGA Small, intended for Amiga owners with limited RAM and processor power, right up to CGFX Large for graphics card owners with stonking machines.

Although the demo will run from CD, it would probably run better if you copied the drawer from your copy of *AFCD22* and put it on your hard drive as *Foundation* likes to write to your drive.

**You won't see these snowbound levels anywhere but on *AFCD22*!**



Exclusive!

Our next top quality demo is for those of you with a fairly well kitted out Amiga. If you're currently cutting CDs with *MasterISO* or *MakeCD* then this advance copy of *HappyCD*, otherwise known as *MasterISO v2*, should come as a very pleasant surprise. Instead of the ranks of buttons and menu options that *MakeCD* and the original *MasterISO* present you with, *MasterISO 2* can write a CD with only a couple of button presses. You can even write on the fly without creating an ISO image first!

But it would be a pretty poor show if all we had on the CD were just these two cracking demos. Fortunately, we've got heaps of other stuff for you to get your teeth into.

## Wondering why YOUR work isn't on the CD?

**If you've sent in a heap of floppy disks to us in the expectant hope that your work will be represented on our excellent CDs (and so you can stand a chance of winning our £50 reader prize), and you've been disappointed to note that your work hasn't yet appeared, there may well be a simple reason for it.**

**Read the submissions advice!!! It's on the CD every month. In several places. Including in Ben_Speaks!, our website browser and in the ReaderStuff drawer. If you are sending in MODs, MEDs or any other kind of music modules – STOP! We can't put them on the CD. If you are sending in work for the gallery, include an AF_Readme. Without it your work won't go on the CD. If you are sending in a collection of icons, your latest utility or just a text file explaining how the A1200's floppy drive works, include an AF_Readme. Without it your work won't go on the CD. If you send anything to us to go on the CD, include an AF_Readme file. Without it your work won't go on the CD.**

**So. Got it? Without an AF_Readme, your work won't go on the CD. Copyright infringing things won't go on the CD, so no Simpsons sample collections, no MODs of any description (even if they are just chip tunes), and no scanned pictures of Gillian Anderson. That's all. There are no more rules. Just follow these and your work will go on the CD. Again I say, if you need more information, consult the very friendly and informative Submissions Advice file in three places on the CD and maybe we won't have to throw away more than half of the submissions we receive.**

### PPAINT 7 UPDATE

AFCD22:-Seriously_Amiga-/Commercial/PPaint7_Update

If you're one of those people that got *PPaint 7* as part of your fantastic



**Stop using that frumpy old version of *PPaint* and upgrade your machine with the very latest update.**

# ReaderStuff

**Our readers have been ever so busy again this month, and yet again I've had a very hard time trying to decide which one should be the lucky recipient of the £50 prize we like to give away. Hmmm, which one? Which one?**




## GUI4CLI

AFCD22:-ReaderStuff-/D_Keletsekis

**OK, I'll put you out of your misery. The winner this month just had to be Dimitris Keletsekis for his excellent *Gui4Cli* program that allows the user to create a nice friendly front end for any of their Shell programs. Even more impressive, this is Dimitris' first attempt at programming a programming language so he should be doubly congratulated.**

**But, as usual, Dimitris' contribution doesn't exist in a void – we have more than 100Mb of other reader contributions for you to trawl through. Here are just some of the highlights:**

## CHILLION AND OTHERS

AFCD22:-ReaderStuff-/Søren_Nielsen

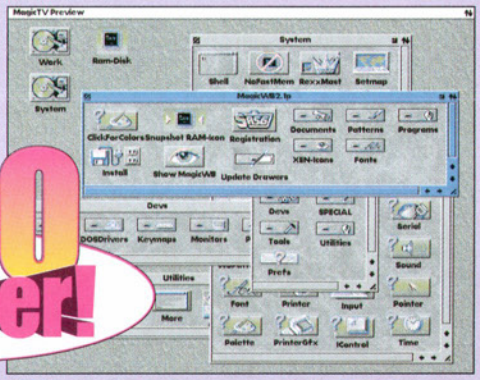
**Søren decided to send us a whole bunch of stuff, but the office favourite has to be his old Amos game *Chillion*. It's a *Breakout* with a difference kind of game and, unusually for most of the Amos titles we get here, it seems to work fine. I only wish you could quit it back to Workbench.**

## MAGICTV

AFCD22:-ReaderStuff-/Neil_Crawforth

**Neil's fed up of flickery HiRes Interlaced screens so he's come up with a way to make your monitor a lot easier on your eyes.**

**If you're still using a TV or 1084, then you should give it a go and then send him your thanks for not needing quite so many aspirins while you're using your machine.**



Ahhh, that's better. No more eyestrain with Neil Crawforth's *MagicTV Workbench*.

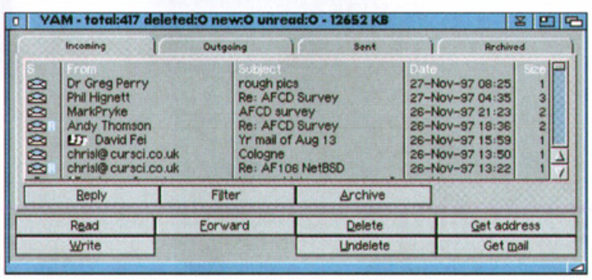
## TRASHMAN AND FINDIT

AFCD22:-ReaderStuff-/Wayne_Phillips

**Wayne's given us a system-wide trashcan and a useful file finder which are designed to be run together. He's really thought about how to get the most from this kind of deletion tool and even offers the opportunity to use Select All in a window, drag all the files over and then choose which ones you don't want to delete – much easier than having to hunt out the files you want to get rid of among 50 or 60 icons. Do register with Wayne for this cool tool because, as he says, he doesn't have a regular income. You see, Wayne is only thirteen years old...**



You'll find Wayne's *TrashMan* in the ReaderStuff drawer. Keep up the good work Wayne!




YAM can be vastly improved if you use the ARexx scripts we have on this month's CD.

subscription offer and you haven't yet upgraded to *PPaint7.1* with its many enhanced features, then you've just lost your last chance to pay for it.

Cloanto can't be bothered to wait for you to send them your money, so they've decided that you may as well have the update for free.

On our CD this month you'll find the *PPaint 7* update which will boost your program up to the latest version.

Then you may want to trawl through all of our previous CDs in order to find all of the other libs and so on that have been updated since *PPaint* version 7.1 was released.

## NEW YAM SCRIPTS

AFCD22:-Seriously_Amiga-/Shareware/Comms/Other/YAMscripts

Kai Nikulainen is a name well-known to people who use YAM by Marcel Beck. He's probably created more ARexx scripts than anyone, to do more things and to extend YAM's flexibility.

You'll find a whole bunch of his scripts in this drawer. There are tools to make your email anonymous, fix odd quote marks, add taglines and search folders, among others.

To make them work all you need to do is follow the instructions in YAM.

## MOZILLA PATCH

AFCD22:-Seriously_Amiga-/Shareware/Comms/WWW/ib.mozz_patch

Fed up with getting turned away from websites because you are not using *NetScape 2* or higher when you know that *iBrowse* can handle a site?

This patch allows you to pretend that your vastly superior *iBrowse* is actually the rather lowly Nutscrape.

# At your fingertips

**As always, there's a host of interesting stuff on our CD that we just don't have more room for:**

## LET'S GET VISUAL

AFCD22:-Seriously_Amiga-/Shareware/Workbench/VisualPrefs

**Do you like the fact that MUI allows you to choose the look of all your MUI programs? But don't you hate the fact that while all your MUI programs look gorgeous, all your standard GadTools programs look drab by comparison? *VisualPrefs* is here to sort that for you. It gives you ultimate control over all the visual aspects of Workbench, from the way scrollbars and buttons look to the appearance of the gadgets in the corners of your windows.**

## HUNGRY, HUNGRY HIPPOS!

AFCD22:-Seriously_Amiga-/Shareware/Sound/HippoPlayer

**The Amiga's premier tune player is back in a brand new version. *HippoPlayer* is widely recognised as the best tracker player in existence and this new release has the following great new features:**
*** HippoPlayer now works properly with Picasso96 and MCP * Proper random playback of modules * THX 2.10 support * Module name conversion * AHI support.**

## CD SUPPORT AT NO COST

AFCD22:-Seriously_Amiga-/Shareware/CD-ROM/AmiCDFS2

**The Amiga's best shareware CD-ROM filing system has recently had an update. *AmiCDFS* is the one we recommend to anyone with a SCSI CD-ROM drive, especially for use with our CDs. It's quick and should be even quicker for '060 owners, now that it has been optimised and recompiled for that processor.**

## BLITZ TCP EXTENSION

AFCD22:-Seriously_Amiga-/Shareware/Programming/Blitz/TCP-Extension

**Ever wanted to code your own web browser, just like John Kennedy? Well these extensions will let you use it online as well as off by adding common TCP/IP calls to your arsenal of useful libraries for Blitz. Now, where's that copy of *NetScape* again?**

## E'S ARE GOOD

AFCD22:-Seriously_Amiga-/Shareware/Programming/E/E_v3.3a

**The programming language E has a great number of followers on the Amiga. Programmed for a laugh by the rather difficult to pronounce Wouter van Oortmerssen, it's a great programming language specifically designed for the Amiga.**

**Continued ➡**

# At your fingertips

## ON THE OTHER HAND...

**AFCD22:-Seriously_Amiga-/Shareware/Programming/Other/NRCOBOL1b**

If you fancy taking a step back in programming time then why not give this implementation of COBOL a try? According to the author, COBOL programmers are seriously sought after right now because no-one uses the language. That is, apart from the many huge companies and financial institutions that have all of their software written in it.

## NEW DATATYPES

**AFCD22:-Seriously_Amiga-/Shareware/Workbench/-DataTypes-**

Check out the new PNG, JPEG and other datatypes that we have for you this month on the CD. There is even a CDXL one, so you should be able to play any CDXL animations back through MultiView.

## AHI

**AFCD22:-Seriously_Amiga-/Shareware/Sound/AHI**

**AFCD22:-Seriously_Amiga-/Shareware/Programming/Other/AHI**

*AHI* is to retargetable sound what Picasso96 is to retargetable graphics. It's a standard extension to the Amiga's capabilities that means you can easily add a 16-bit soundcard to your machine and expect it to work with AHI-supporting programs.

Although these aren't as widespread as tools which are happy with RTG, the number is growing exponentially and most new games, including *Myst* and *Genetic Species*, require you to have it installed. The two different drawers on the CD are for the user version and the developer version. This is so the avid programmers among you can propagate new AHI programs to add to the swell of AHI-supporting tools.

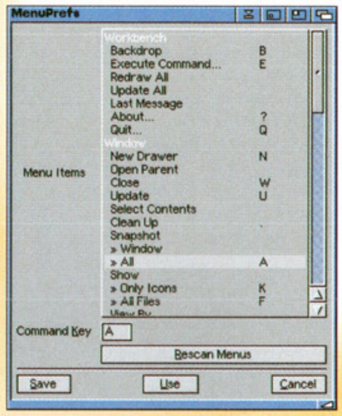
## SPOTLIGHT ON A HANDY TOOL!

### REKEYIT

There are times when everyone just knows that if they ran the world they would do things differently, especially in the Amiga community. *ReKeyIt* gives you that very opportunity, albeit in a rather small way.

The point of *ReKeyIt* is to give you the ability to change the keyboard shortcuts used for Workbench menus. So, for example, if you really want to be able to snapshot all the icons in a window, and the window itself, you might want to assign Right Amiga A to that function, rather than select all.

Its prefs program works with either a GadTools or MUI interface depending on your personal preference, and it works extremely well. Why not try it?




*ReKeyIt's* preferences can be MUI-based if you like, GadTools if you don't.

## SEPARATE YOUR PICTURES

AFCD22:-Seriously_Amiga-/Shareware/Graphics/WYSIWYG



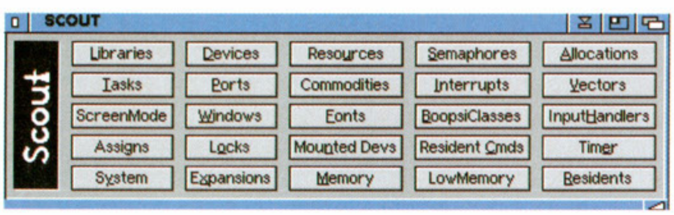
*WYSIWYG* gives you the ability to ensure that your pictures come out exactly as intended on your printer.

If you're really into DTP on your Amiga then you might like to use a professional printer to output your pages. You may even have one of these new colour inkjet printers that give fantastic output, but you'll always be slightly disappointed with the results if you are printing an RGB image with CMYK inks.

*WYSIWYG* is a small program that allows you to create CMYK images from your RGB ones to ensure that they are as close as possible to ideal for outputting to your colour printer (or for using a lino machine, like we do at *Amiga Format.*) *WYSIWYG* gives you a preview of how your image will appear on the page and also lets you specify things like gamma, UCR and GCR.

You'll need the Rainbow System (which is on this CD, just to the right of the *WYSIWYG* drawer) to get it to work.

Probably more control over their Amiga than anyone will ever need with *Scout*.




## SCOUT

AFCD22:-Seriously_Amiga-/Shareware/Misc/Scout

If you're the kind of control freak that likes to know exactly what your Amiga is up to, then *Scout* is probably going to be your dream tool. The idea is that the Amiga does have a lot of control over its tasks, resources, libraries and more that the user doesn't normally get to see.

*Scout* allows you to remove crashed programs, close their windows and screen and free up the memory that they've used. Hidden away behind that initial window are as many as 49 more that give you ultimate control over your machine. In essence *Scout* is similar in concept to the aging ARTM, but it does the whole thing much more stylishly using MUI windows.

## READER WARRANT

Every reader submission to the *AFCD* must have a reader warrant attached to the accompanying AF_Readme file. You can type it in off this page or take it from the various locations it is stored in on the CD (Look_here_1st!, ReaderStuff etc). A last reminder: this text must be in your AF_ReadMe, or your submission won't go on the CD – it's Future policy.

In respect of all material which forms my reader contribution to Future Publishing's Amiga Format I hereby warrant that:-
(1) the material is original and does not infringe any other material or rights;
(2) the material does not contain any material which is defamatory, obscene or indecent and is exempt from classification under the Video Recordings Act 1984;
(3) that there are no legal claims against the material provided;
(4) that I have full power and authority to provide this material to Future Publishing.

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## DISC NOT WORKING?

If your *AFCD* is defective, please return it to the address below. Please make sure that you have followed our installation procedures correctly to ensure that there is no physical problem. Please send us the *AFCD* along with a description of the fault (not forgetting your name and address). A new working version should be returned to you within 28 days. The return address for faulty discs is:

CD Systems • VDC House
House Way • Wembley
Middlesex • HA9 0EH

Your *AFCD* should only need replacing if the CD itself cannot be read. If, instead, you are experiencing problems with an individual demo or application, phone our technical support line. This is open between the hours of 2pm and 5pm every Tuesday.

Tel: 01225 442244
Fax: 01225 732341
email: amformat@futurenet.co.uk
("Coverdisc" in the subject line).

Please note that the helpline staff provide assistance with technical problems directly related to the CD and cannot provide training on the software or hardware in general.

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# Games disk




AMIGA FORMAT

David Taylor is buzzing with excitement about this new Animé shoot-em-up with some of the best quality gameplay we've seen for many a moon.

# AmiBee




Lady Akiko, who's been kidnapped as part of some dastardly plan, no doubt. And guess what? It's up to you to save her...

Lady Akiko has been kidnapped and you're winging your way to her rescue, which involves shooting all manner of enemies who get in your way. *AmiBee* is a classic shoot-em-up that uses the Japanese Animé style of drawing for its graphics. The game can be played directly from the coverdisk, loaded from Workbench or copied to the hard drive and run from there.




Bees, bells, baskets and bad guys in the best blaster for the Amiga we've seen for ages. Brilliant.

When the game loads you use your joystick to control the AmiBee. For the first few seconds of the level, or of a new life, you will be protected by a shield.

Use this time to get yourself into a decent position because you may find that a wave of enemies is bearing down on the place where you were re-incarnated. As you lose any power-ups you have collected when you die, you will be reasonably clumsy and slow and the enemies will be too fast for you to shoot down – so get out of there, fast!

The enemies attack in waves and you get a bonus if you manage to shoot down an entire wave. At the start of the game you will be quite slow with low firepower. Because of this, it is better not to use auto-fire as you don't have the ability to blanket the screen with bullets. Try to time your shots so they are accurate instead.

To begin with, you are equipped with three special FireBeams. These are huge fireballs that are activated by holding down the fire button and letting the bar at the bottom left hand side of the screen build up.

It doesn't have to be built all the way up to activate a FireBeam, but the higher up it goes the more powerful the beam will be. Releasing a beam of any strength deducts one from your arsenal so be careful. It can be easy to release one by mistake, so if you want to release a normal shot make sure you only tap the fire button.

## GROUND ATTACK

Some enemy bases will fire at you from the ground. You cannot shoot these with your bullets but you can bomb them. To throw a bomb, press the space bar (or second joystick fire button) and AmiBee will lob a bomb. These fly forwards as they drop so you need a little practice to get used to aiming them properly.

When you destroy a base you may be rewarded with an item to collect . Fly




The first bee-based shoot-em-up from Peru you'll have ever played – guaranteed.

over the item to collect it and you will score bonus points. It is more important to destroy the buildings to stop them firing on you than it is for the points.

It is easy to get hemmed in by flying enemies and shots from everywhere which, although they float along slowly, do home in on you. If you're not careful you may find yourself stuck and then shot down by a base you could have destroyed, which is very frustrating!





(Above). The impressive FireBeam weapon in action – very useful for getting you out of tricky situations!

As well as the enemies in the air, you can shoot some of the clouds that float down the screen. Some of them will release bells that fall down. These first appear as gold bells and if you collect one you will get bonus points. The more gold bells you have collected the higher the bonus you will get for each one. However, these bells can be much more valuable than the points they award.

If you shoot a bell it will be pushed back up the screen and so it will be available for longer. After a number of shots the colour of the bell will change at random. Different colours produce different results. You can continue to shoot bells after they have changed colour in order to change them again.

Blue bells speed up the response of AmiBee so it can fly quicker. This is probably the one that you want to collect most urgently at the beginning, because your sluggishness is your greatest weakness and you can easily become trapped.

Green bells progressively improve the firepower of your guns and then swap you onto the next weapon and so on. Red bells supply you with an extra FireBeam. These are very useful as you don't get many FireBeams and they can get you out of many a tight spot.

The black bells are to be avoided at all costs. Shoot them again to change their colour. These bells damage AmiBee. The first time the bee is hit, it will lose its arms (and ability to throw bombs). The next time you will lose a life. If you do lose your arms, a flying ambulance will appear on the screen and you can fly in to be healed.

## WING AND A PRAYER

Occasionally you will see a winged basket flying in the sky. This is where another use of the bells comes in. Don't shoot bells continuously but learn to knock them around the screen with well timed shots and you will be able to land them into these baskets. Knocking bells into baskets scores you extra points, but if you collect ten bells of any colour in the baskets you'll get an extra life too. As you'd expect, there is also an end of level guardian for you to deal with.

You'll soon find that *AmiBee* is an addictive game with a lot more thought behind the gameplay than shoot-em-ups normally have. The secret to success is to learn to use the guns, bombs and FireBeams appropriately. Good luck!

This game is Shareware, and if you like this first level you can register the game with the author in order to play the other levels. The registration fee is US $10, which is about £7 – rather good value really. This is the first Peruvian Shareware game release, so to show your support and to get your hands on the rest of the game, send your contribution to: Lobsang Alvitas Szaler, Jr Caracas 2363, Lima 11 – Lima, Peru. There is a European contact: Gabriela Szaler, Via Goghi 132, #5020 – Candi, Rovigo, Italy.

However, you are warned that it may take longer if you use the European contact. The author can be e-mailed at mrbyte@chavin.rcp.net.pe. AF

## SPECIAL NOTES

**If you wish to install the game on your hard drive, copy the disk's entire contents into a directory on your drive. The game can be loaded from Workbench but as it plays better with more fast RAM free (if you have any), you may find it better to load the game from floppy – by booting the coverdisk you don't have the Workbench overhead loaded.**

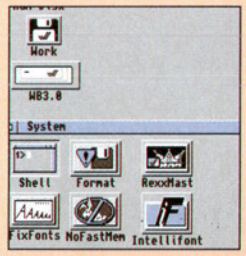
**Note that when loading the game it stops at a screen and lets you choose your screen mode. Use PAL.**

**For more details on the game, read the documents from Workbench. In order to fit this game onto a floppy disk we had to archive the Spanish documents that come with the game. The English ones can be opened directly from the disk, but in order to read the Spanish ones you need to unpack them. There is a script with an icon that will un-pack them for you to RAM: although it needs you to have Lha installed in your path somewhere (Lha is not supplied on this disk).**

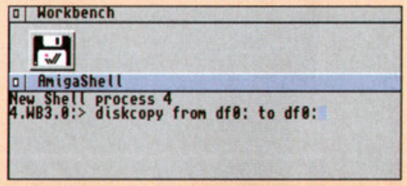
**To un-pack them, simply double-click on the Unpack icon on the Coverdisk. Then open the RAM disk and read the documents from there.**

## BACKING UP YOUR COVERDISK

**Copying your Coverdisk is really very simple. Just follow the stages below...**

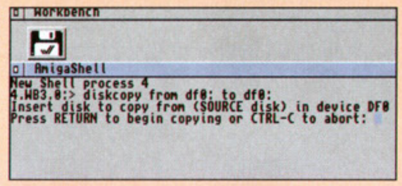



**1 Boot up with your Workbench disk and find the Shell icon, in your system drawer. Double-click on this to go into the Shell.**

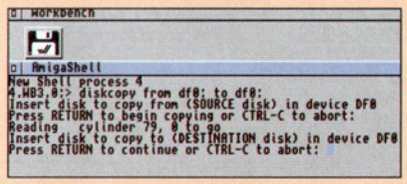



**2 Type in the following line (with a zero, not the letter O), taking care to put the spaces in the correct places:**

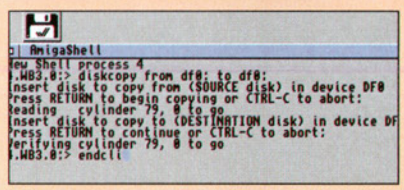
**DISKCOPY FROM DF0: TO DF0:**




**3 When asked for the Source disk, insert your write-protected Coverdisk and press Return. All of the info on this disk will then be copied from the disk into memory.**




**4 Once your Amiga has read the info, it will ask for the Destination disk. Insert it and press Return. All information on this disk will be destroyed.**




**5 On an unexpanded machine, the Amiga may ask for the source disk again, because it copies in chunks. Finally, type endcli to close down the Shell.**

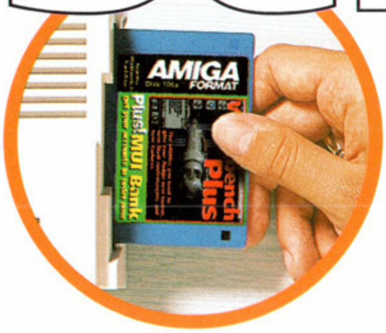
## DISK NOT WORKING?

We take every care to test the Coverdisk software, but Future Publishing cannot accept any responsibility for any damage occurring during its use. If your disk is faulty, send it back, with 2x26p stamps and an SAE to:

*Amiga Format* (insert name of disk)
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If there is a manufacturing error then the stamps will be returned with a replacement disk.

# Serious AMIGA FORMAT disk







**David Taylor** shows you how to revitalise the way your Workbench works with this month's set of utilities and extras.

# Workbench Enhancements

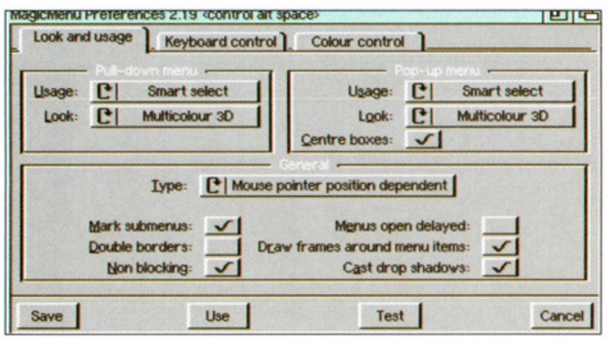
Last month we brought you New Icons 4.1 to give your Workbench a completely new and up-to-date look. This month we are out to revolutionise the way your Workbench works with a group of programs that are designed to update the Workbench functions themselves.

## MAGIC MENUS

The first big change is supplied by the *Magic Menu 2.21* package. This program will install the main program to WBStartup, its prefs program to Prefs and will install the gtlibrary if necessary. Once installed, it will start every time you boot Workbench. The package patches the calls to menus within all programs, not only Workbench, and therefore there is the possibility that it will conflict with some programs (although we haven't encountered a problem yet).

When a menu is called by clicking the right mouse button, the *Magic Menu* package intercepts the call and uses the new style menus instead of the old ones. How the new menus look depends on the settings you choose within the Prefs package. By default, the look is a new 3D effect. The Preferences also govern the adjustable functionality of the new menus.

Unlike the standard Intuition menus you can adjust the way the menus work. In the preferences you will see that you can change the way Pull Down and Pop Up menus work separately. The Pull Down menus are the normal ones that appear when you move the pointer to the top of the screen and click the right mouse button. The Pop Up menus are added in so the menus will appear next to the pointer wherever it is on the screen, so that you have no need to go up to the top of the screen.

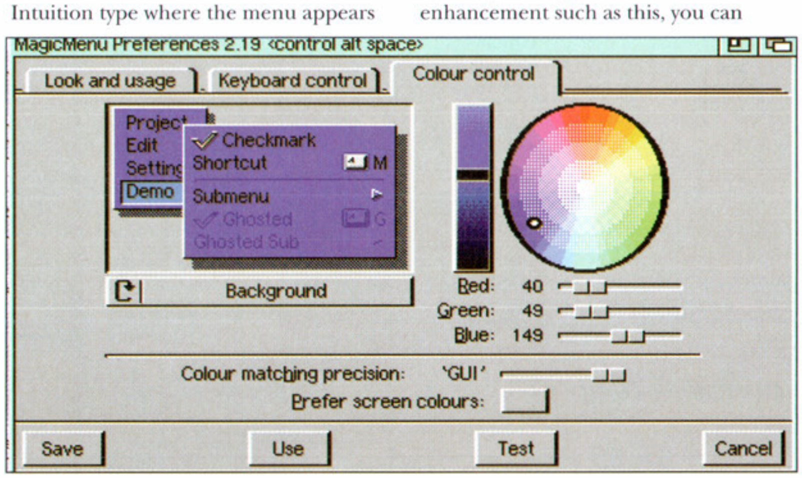



**The Preferences allow you to change the two menu types to suit the way you like to use them.**

There are three options for both menus. The first is the standard Intuition type where the menu appears when you press the mouse button and disappears when you release it. The second is Sticky Mouse, which means that the menu will appear when you press the button but won't disappear if you let go. If you move over a menu or submenu/item it will be selected. To activate an item once selected, you press the left button or press a button off the menu to cancel it. The last choice is Smart Select, which again retains the menu when you release the mouse button. However, to select a menu or submenu you have to click on the entry with the left button.

You can also choose to have Keyboard control of menus. This gives you a shortcut (right-Amiga Space) to activate the menus which you can then navigate by using the arrow keys and the <Return> key.

As you'd expect for a menu enhancement such as this, you can




**You can change the colours of all the menu elements. Don't go for anything too gaudy as it will be unreadable.**

choose exactly what colour scheme you want to use. You can change the colour of the text (selected and not), the background (selected and not) and the borders. It is tempting to go wild at first, but you will find that making simple changes that complement each other makes it easier to use the menus while still providing a startling change from the dull grey we are used to.

While the program is not crippled in any way, the status of the package has changed from Freeware to Shareware. There is no fixed fee, but you are asked to send any donation you'd like to the author, at the address shown in the docs, to encourage him to continue developing programs.

## VINCED 3.55

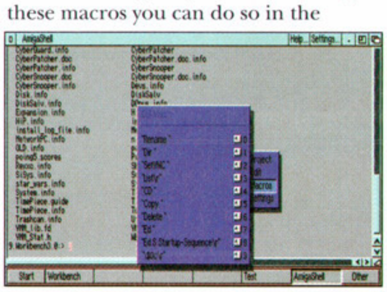
We have given away replacement Shells in the past where the new version offers a whole new CLI with new commands. ViNCEd is something different. It is a replacement for the CLI environment. In other words, it doesn't replace the AmigaDOS commands but improves the Shell interface instead. Normally you have a simple text input window that has a simple history where you can repeat previous commands. When you have ViNCEd installed, you will find that the Shell is now a completely functional text editor with menus, which is much more friendly to use.

When you open a Shell you will see that you have buttons for settings and for launching the on-line help, as well as one to minimise the Shell session. This doesn't close the session, but instead adds a greyed-out icon to Workbench. This session is still active (if you are performing an operation, the machine

> ... making simple changes that complement each other makes it easier to use the menus...

multitasks and continues with the task, even when minimised). To open it back up, you just need to double click on the grey icon.

Within the ViNCEd Shell, you can copy and paste items and you can save the history of commands and re-open it later. You can also use the macros that are set up as menu items for commonly used CLI strings. If you want to change these macros you can do so in the settings for ViNCEd. The help file details all the new features that this environment offers and, best of all, it's completely free.



The new ViNCEd session includes many new features including new menus as displayed here with the *Magic Menus* working.

## GLOBAL TRASH

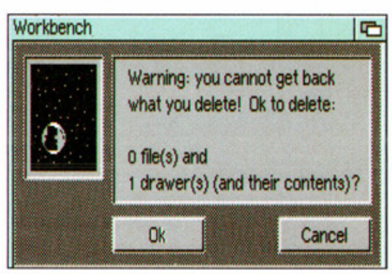
Normally when you delete a file it is gone for good, unless you get out your file utilities and start trying to undelete them. With Global Trash you can dump your files into the Trashcan and they will be removed from sight within the normal windows, but not actually removed. You can then retrieve files at any time from the can before they are deleted after a time out period. It's an idea which has proved popular on the Windows platform.

## AVIEW

Multiview allows you to read hypertext documents and uses datatypes to show and play files that aren't native to the viewer. AView, however, is different as it allows you to view the documents, and also to define the utilities you wish to use for different filetypes. AView then intercepts calls and decides on the filetypes, using your chosen utility to deal with the file. This is a much faster way of working with files by using programs dedicated to the type rather than the fairly lacklustre datatypes.

## ARQ

As we were compiling a disk for improving Workbench, we couldn't really miss out the requestor improvement utility that we highlighted on the CD a few months ago. This is the utility that everyone should really have. It removes the boring "OK to format disk" type requesters and replaces the system requesters with new animated ones, as well as adding in keyboard confirmation for the requestors. AF




Get your Workbench a life with the new requestors supplied by the ever popular Arq.

## MUI BANK 1.6

**Using a computer to keep track of finances is, according to statistics, one of the most popular uses of home computers. MUI Bank brings you the power to do this but retains an easy to understand interface. When you load the program you'll see that, essentially, all you have to deal with is Credits and Debits.**

**Before you add any items of either category, you should check out the Lists menu item which is where you set up transaction types. For instance, you can set up expenditure types for Leisure (or split it down into Cinema, Music, Pub, etc), and Bills (split into Utilities, Phone, etc). Now when you click on a transaction you set the date of the transaction and when it actually takes place (to take account of clearance of cheques). You set the types of transaction and the amount.**

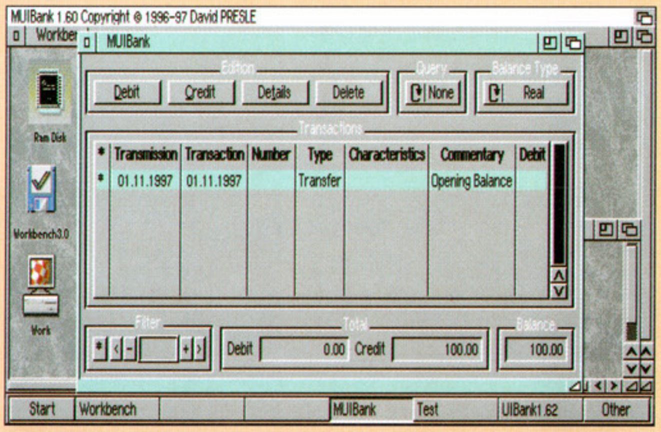
**The only other thing you really need to note is the balance type. This defines how the balance is calculated.**

**You will see that on the left of some transactions an asterisk may appear. If an asterisk is present then the item has been made invalid (ie. not activated). This means that it won't be used within the balance calculations. You can click on the asterisk to toggle it on and off.**

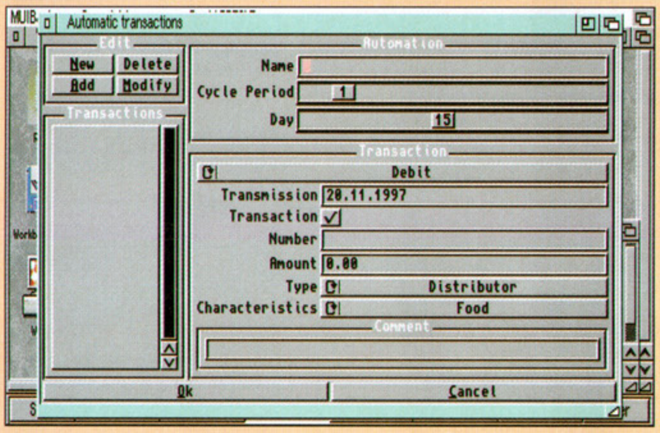
**You can also flick through the balance type so that all items, whether activated or not, are taken into account.**

**Lastly, you can set up automatic transactions, for pay coming in or for standing orders going out, by using the menu item.**

**This opens a requestor that allows you to define the exact nature of all transactions.**




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The Automatic transactions section can be used to set up money coming in or direct debits and standing orders going out.

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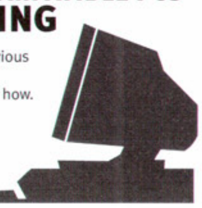
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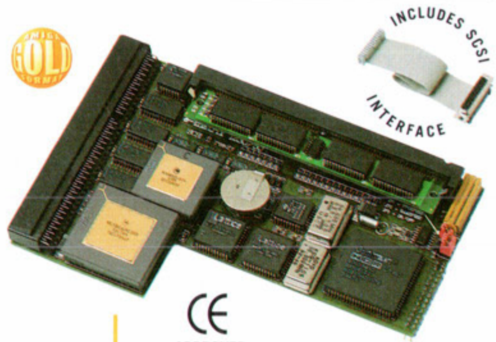
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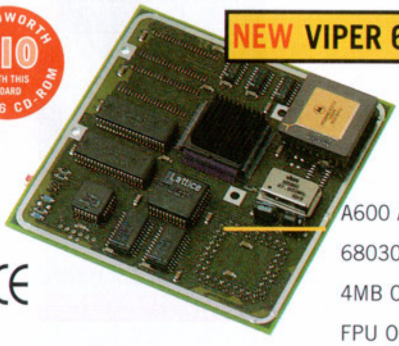
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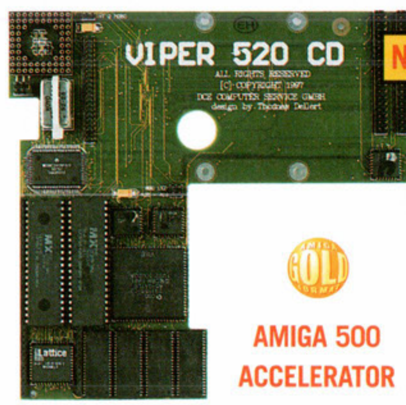


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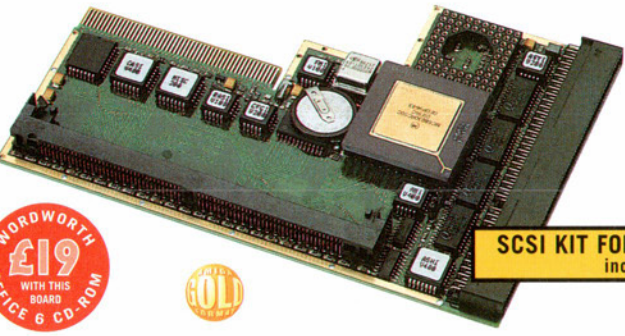
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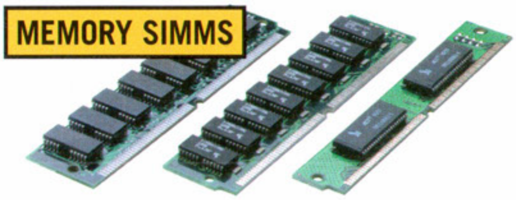
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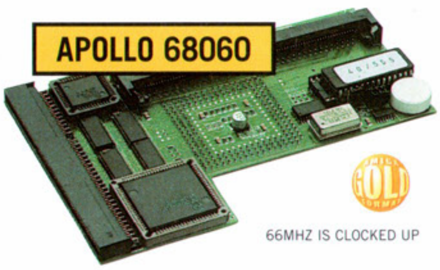
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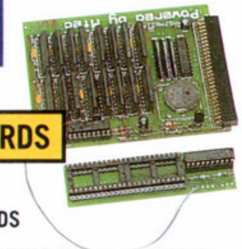
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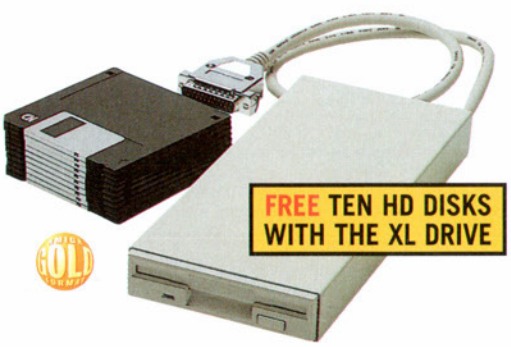
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